

WAR

ISSUE 1

40p

AUSTRALIA *\$1 & N.Z. \$1 S. AFRICA R1

MONTHLY

**KURSK,
THE TURNING POINT**

**INSIDE THE FIGHTING
TIGER TANK**

BLOODY TARAWA!

**Me 262
THE NAZIS'
JET THREAT**

**A J P Taylor on
HITLER'S 'BLUNDERS'
THAT WEREN'T**



WAR MONTHLY ISSUE 1

Subscription rates

For 12 months:

UK and Eire	£6.50
US and Canada	\$18
Other countries	£7.50

These prices include packing and postage. Orders should be sent with payment to W. H. Smith & Son Ltd., Subscription Services, Vachel Road, Reading, Berks., England, or any branch of W. H. Smith & Son Ltd. Be sure to state from which number you wish your subscription to begin. Subscriptions will be sent by surface mail from England.

Back numbers

Back numbers of War Monthly are available from Department V, M/C Ltd., P.O. Box 80, Slough, SL3 8BN, England, for 40p per issue including postage.

Readers in the US and the British Commonwealth outside the UK should obtain back numbers through their regular magazine supplier.

Published by
Marshall Cavendish Ltd.,
58 Old Compton Street,
London, W1V 5PA, England.
Telephone 01-734-6710.
Telex 23880

Printed in Great Britain by
Severn Valley Press Ltd.,
Caerphilly, Monmouthshire.

© Marshall Cavendish Ltd 1974

US and Canada on sale date:
April 1974

* Recommended retail price

CONTENTS

- 1 **Kursk:** Alan Wykes
- 11 **Tiger Mk1 and Mk2:** Chris Ellis and Peter Chamberlain
- 18 **Hitler as strategist:** A. J. P. Taylor
- 26 **Zeebrugge:** Richard O'Neill
- 34 **Tarawa:** Burton Graham
- 44 **ME 262:** J. Richard Smith



Robert Hunt Library/Bundesarchiv



Robert Hunt Library/Bundesarchiv

△▷ *The battle of Kursk. A 150mm German battery pounds the Russian positions. One of the formidable 88s sits in the background.*

▷ *Soldiers of the German Gross Deutschland division discuss the next move in the progress of Operation Zitadelle. But it was to no avail. The Wehrmacht would be driven back.*



KURSK



**Two giant tank armies massed on the steppes in readiness.
For one side or the other, this battle could win the war**

The German armies in Russia were prepared for a massive offensive to reverse the disaster of Stalingrad. The finest divisions of both the *Wehrmacht* and the *Waffen SS* were gathered in an enormous concentration of men and armor. Armed with the latest tanks, their morale high, they expected to be unstoppable, even if the Russians were ready. But 'Whenever I think of this attack,' said Hitler, 'my stomach turns over' — and his queasiness was understandable. For now, in the spring of 1943, both he and his generals knew that only a decisive victory over the Red Army could ease

the relentless, threatening pressure on the Eastern Front.

The cracks in the wall of Axis domination were becoming ever more numerous and more apparent. The Allies were beginning to overcome the efforts of the U-boats. Italy was in a more parlous state than ever before. Japan's advances in Burma and the south-west Pacific had been stopped, and were going into reverse. The bombing of German industrial centers was disrupting essential war supplies. The hit-and-miss methods of the Red Air Force were being offset by increasing numbers of planes and the increasing skill of the



'Brew up'. A Russian T34, one of the 3,600 Soviet tanks used at Kursk, ablaze during the fierce battle. The large forward hatch gapes open as burning fuel lifts oily black

smoke skywards. The T34, mainstay of Soviet armor at Kursk, and pitted against over 2,500 German tanks, was no match for the Tiger or Panther.



Data by Harrison VP Limited

The Eastern Front as it stood in July 1943.

Russian air crews. And the threat of a Second Front kept many German divisions tied up in Europe, reducing the possibility of any major effort on the Russian front.

Then, in March, came Field Marshal von Manstein's great victory at Kharkov for Army Group South and it seemed for a moment as if the tide was turning. But it was a short-lived hope. The victory, so far as the restoration of the German initiative was concerned, was incomplete. A great Russian-held salient remained — a bulge roughly semi-circular in shape, driven some 75 miles westward into the German lines at Kursk, with its base measuring more than 100 miles from north to south. Within the salient were said to be a million men, and armaments in proportion. Clearly, a pincer movement thrown across the base of the salient would cut off and destroy the forces contained in it and considerably weaken the total power of the Soviet army, and von Manstein planned such a movement to clinch his victory.

As so often before, however, the weather took a hand. The spring thaw turned vast tracts of frozen ground to mud,

ivers rose, swamps appeared, ruined villages were mirrored in the desolation of floods. There was nothing von Manstein could do but withdraw his armor to save it from getting bogged down, and leave the infantry in possession while a plan was worked out. But there was a catch: the longer the Germans remained purely on the defensive, the sooner there would be an attempt by the Russians to widen the salient and breach the German front completely.

At a time when speed and decisiveness of action could have produced results, the Germans vacillated. Hitler changed his mind. His generals feuded among themselves. And there were conflicting interpretations of the demands of the situation in Europe. Even the promise of a new assault on the Don and an advance towards Moscow after the salient had been pinched out could not bring the Fuehrer to decide. Tanks and other heavy assault weapons — particularly the Tigers and Panthers — were not reaching the army in the expected numbers. It was 11 April before the semblance of a design was arrived at, and it was in essence the same design that von Manstein had been unable to fulfil after Kharkov. It was indeed the obvious plan — and its obviousness was now appreciated equally by the Russians, who made haste to improve their defenses round Kursk. Any chance of surprise had been lost. Now, the only possibility lay in an assault so tremendous that no defenders could resist it.

Such an attack meant risking far more armor than the Germans could afford to lose, and if infantry support was to be forthcoming for the tanks it also meant imprudently weakening the front both north and south of the salient.

Hitler was himself caught in a pincer movement of commitment. On the one hand he had the conflicting views of his advisers as to the possibility of success. Field Marshal von Kluge, the Army Group Center commander, and Generals Keitel and Zeitzler of the Army General Staff were in favor; Colonel-General Guderian, the Inspector-General of Armored Troops and, by this time, von Manstein himself were equally strongly against. On the other hand there was the assurance of Speer, Minister of Production, that the necessary tanks would be available. And the certainty that without a German offensive the whole weight of the Soviet forces would come crashing against the over-stretched *Wehrmacht*.

While Hitler hesitated, General Vatutin and the Red Army went ahead — not merely with defenses as impenetrable as they could be made, but also with the preparation of a large-scale counter-attack. The news filtered back to Hitler in intelligence reports and alarming air photographs that indicated the withdrawal of the Russian mobile forces from the area west of Kursk in obvious preparation for a counter-attack. But at last, on 10 May, Hitler gave his consent to the plan — it was to be called Operation Zitadelle — emphasizing his underlying reluctance with the words 'It must not fail'.

The opposing forces

The forces were decided. Colonel-General Model's Ninth Army, with seven *Panzer*, two *Panzergranadier*, and nine infantry divisions was to attack from the north. Colonel-General Hoth's Fourth *Panzer* Army, with ten *Panzer*, one *Panzergranadier* and seven infantry divisions would sweep up from the south. The two arms of the pincer would meet east of Kursk, thus enclosing the salient and cutting off huge Russian forces. But, although the plan and deployment were decided, Hitler continued to hesitate.

Knowing that the Russians were building up their de-



- 1 Col. General Paul Hausser, commander of 2nd SS Panzer Corps, elite of the three best-equipped Panzer divisions. He later commanded the Seventh Army in Normandy in 1944.
- 2 Field Marshal Eric von Manstein, commander of Army Group South. Architect of the short-lived German victory at Kharkov in March 1943, Manstein, at Kursk, was forced to conduct a set-piece battle not of his choosing.
- 3 Col. General Heinz Hoth, commander of the Fourth Panzer Army. Hoth, longest serving senior Panzer general, commanded the southern pincer movement during the Kursk offensive, making more progress than Col. General Walther Model in the north. Hoth was dismissed after the fall of Kiev in November 1943.
- 4 Lt. General Josef (Sepp) Dietrich. An Oberstgruppen-fuehrer of the SS Leibstandarte Adolf Hitler Division at Kursk, Dietrich was a crony of Hitler and backed the Fuehrer's judgement to go ahead with the Kursk attack against strong opposition. His SS Leibstandarte unit, employed with brilliant daring, destroyed 27 T34 Russian tanks at Gremutshy. He commanded the 6th SS Panzer Army in 1944-5.

fenses, he postponed the first mooted date for the start of Zitadelle from 13 June until the beginning of July so that an extra couple of battalions of Panthers could be sped off the production line and allotted to Model's northern pincer. The opening of what was to become known — justifiably — as the greatest tank battle in history was finally fixed for 1500 on 4 July, despite continued proposals for abandonment from von Kluge, von Manstein and Guderian.

Opposing the 36 German divisions was a force of 11 Russian Armies, including the crack Sixth and Seventh Guards Armies that had fought so well at Stalingrad and the First Tank Army. Each Russian 'army' corresponded approximately with a German corps in size. In terms of manpower there was little to choose between the conflicting forces, but the Russians had reinforced the north corner of the salient, which would bear the brunt of Model's attack, with thickly sown minefields — so dense that, according to Marshal Rokossovski, who was the joint commander on the Kursk front with Vatutin, 'you could not have put one of Goering's medals between them'. There were 2,200 anti-tank and 2,500 anti-personnel mines per mile of the defen-

sive front, four times the density at Stalingrad. In addition there were no fewer than 20,000 guns of various kinds, including 6,000 76.2mm anti-tank guns and more than 900 *Katyusha* rocket guns. For attack they had the famous T34 tank — one of the best armored vehicles to be produced during the war — with its long-range 76mm gun and great reliability.

The German attacking force was largely based on the new Panther D, a fine tank in many ways but with numerous technical faults caused by hasty production. But the Germans still had considerable superiority in the air, as was to be proved by the squadrons of Stuka dive-bombers.

But if the opposing forces were fairly matched there were other factors that would determine the course of the battle — not least the lost element of surprise, which had been frittered away in argument and indecision.

The ground over which the battle was to be fought was reasonably good for tank warfare. Kursk lies in the basins of the Don and Dneiper and the countryside which surrounds it and formed the salient is characterized by low hills and wide-ranging plains of fertile arable land. The ground is watered by numerous brooks and tributary rivers — one of them, the Pena, being a swift stream running between steep banks. Cornfields stretch for unbroken miles across the landscape. Such roads as there are for the most part sandy cart-tracks that become unusable by wheeled traffic during heavy rain. Numerous scattered villages lie in the shallow valleys and small thickets bristle on the low hills. To the north of the village of Beresowka there is a thickly wooded area, roughly circular in shape and some four miles in diameter.

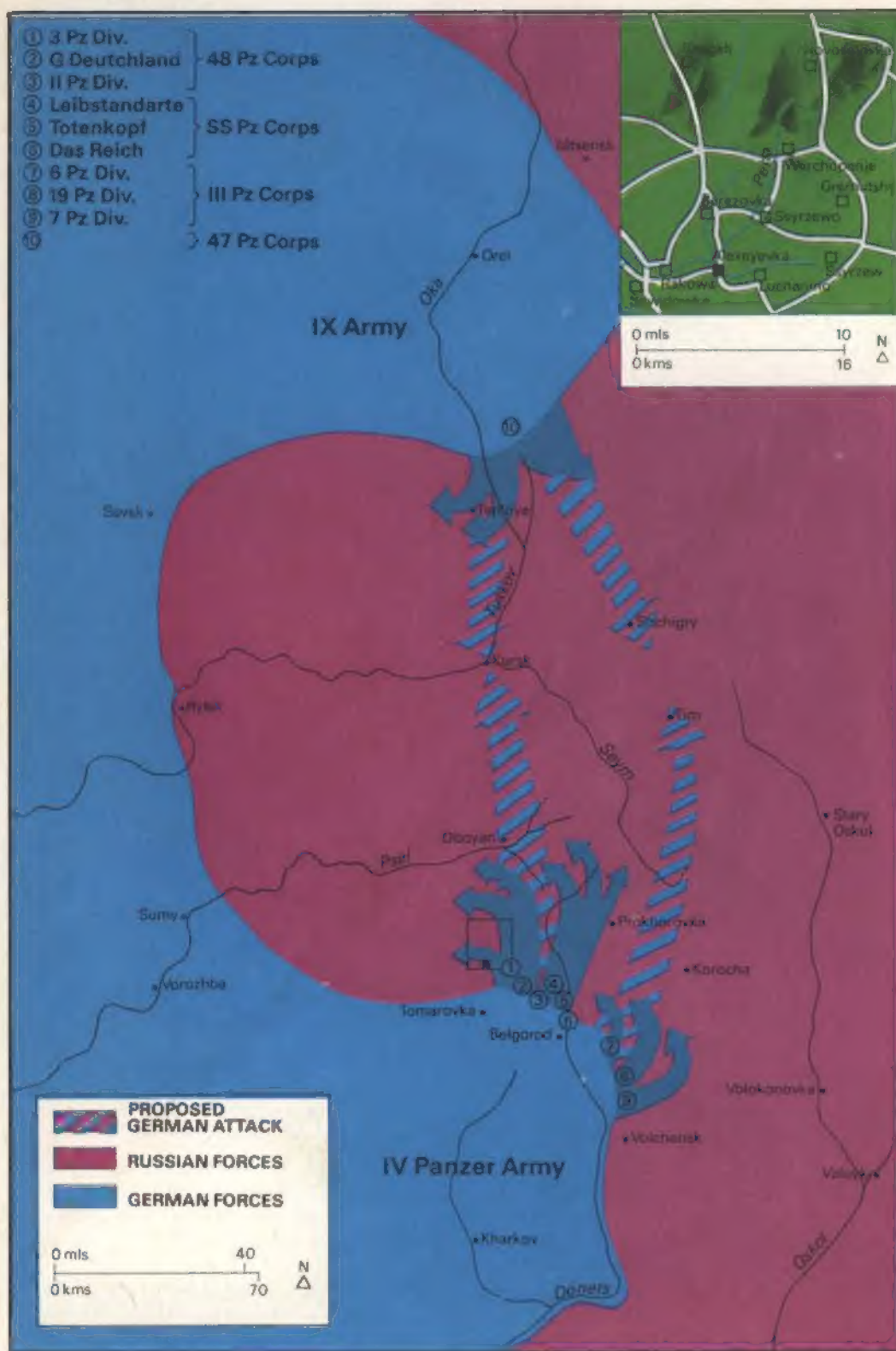
Along the southern front of the salient Hoth's Fourth Panzer Army was lined up along a slight curve extending some 30 miles from west to east. First the 3rd and 11th Panzer divisions and the *Gross Deutschland* division (a *Panzergranadier* unit with a high complement of tanks under 48 Panzer Corps); then the three SS divisions, *Leibstandarte Adolf Hitler*, *Totenkopf* (Death's Head) and *Das Reich* in the SS Panzer Corps; and on the right wing the 6th, 19th and 7th Panzer divisions of 3 Panzer-Corps. There had been the closest co-operation between ground and air forces and the utmost care had been taken to get the huge force of tanks into position under cover of darkness. 'Morale', according to Model, 'was high' — and was raised even higher by a message from the Fuehrer:

'Soldiers of the Reich!

'This day you are to take part in an offensive of such importance that the whole future of the war may depend on its outcome. More than anything else, your victory will show the whole world that resistance to the power of the German army is hopeless.'

Unfortunately the message arrived during a four-hour intense artillery bombardment from the Russians which confirmed that the defenders were well aware that the attack was about to be launched. The intensity of the bombardment inevitably had its effect on the striking power of the attackers, but the attack began as planned at 1500 after a return bombardment by German artillery and some devastating strikes on the forward Russian lines by dive-bombing Stukas.

By 1900 advance infantry and grenadiers of the three divisions on the German left flank of the southern pincer had thrust into the Russian forward line at Luchanino, Alexejewka and Sawidowka — three villages only lightly held by the defenders. The ease with which they were taken was



△ The Henschel 129 B3. Eighty of these aircraft were in operation at Kursk, and were commanded by Haupt. Bruno Meyer. He used the planes as tank destroyers. Later versions, used in 1944-5 carried a 75mm cannon (as shown in the illustration) which replaced the 30mm and 37mm guns in earlier models. Top speed was 253mph.

◁ The Kursk salient. The map shows the proposed German pincer movement through the Russian forces in July 1943, and their actual progress. German units are numbered.

▷ The Flammenwerfer PzKfw III, a flame-thrower version of the Panzer III, carried 250 gallons (1,000 litres) of flame fuel. The tank weighed 23 tons and had a range of over 60 miles. Only 100 Panzer IIIs were converted in this way, a number of which fought at Kursk with the 11th Panzer Division.

characteristic of the tactic, much used by the Russians throughout the battle of Kursk, of luring the attackers into a position that subsequently proved to be untenable.

Model's northern pincer managed to break into the salient on a 15-mile front and 47 Panzer Corps pushed forward about five miles during the next 30 hours, but at great cost in huge Porsche Ferdinand (or *Elefant*) assault tanks. These lacked machine-guns and, as Guderian had warned long before, quickly proved vulnerable. As their escorting light tanks were knocked out, they found themselves at the mercy

of infantry who dashed out from slit trenches and directed flame-throwers into the engine louvres, thus setting the fuel systems alight and forcing the crews to either be roasted alive or to bale out into captivity. The Model thrust was to gain only five more miles to south and west during the next week. Engineers who tried, under covering fire, to clear lanes through the minefields found that this only aided the Russians, who deftly scored many hits with rockets and 76mm guns as the tanks passed through.

'For all our bitter struggling in the north', one young



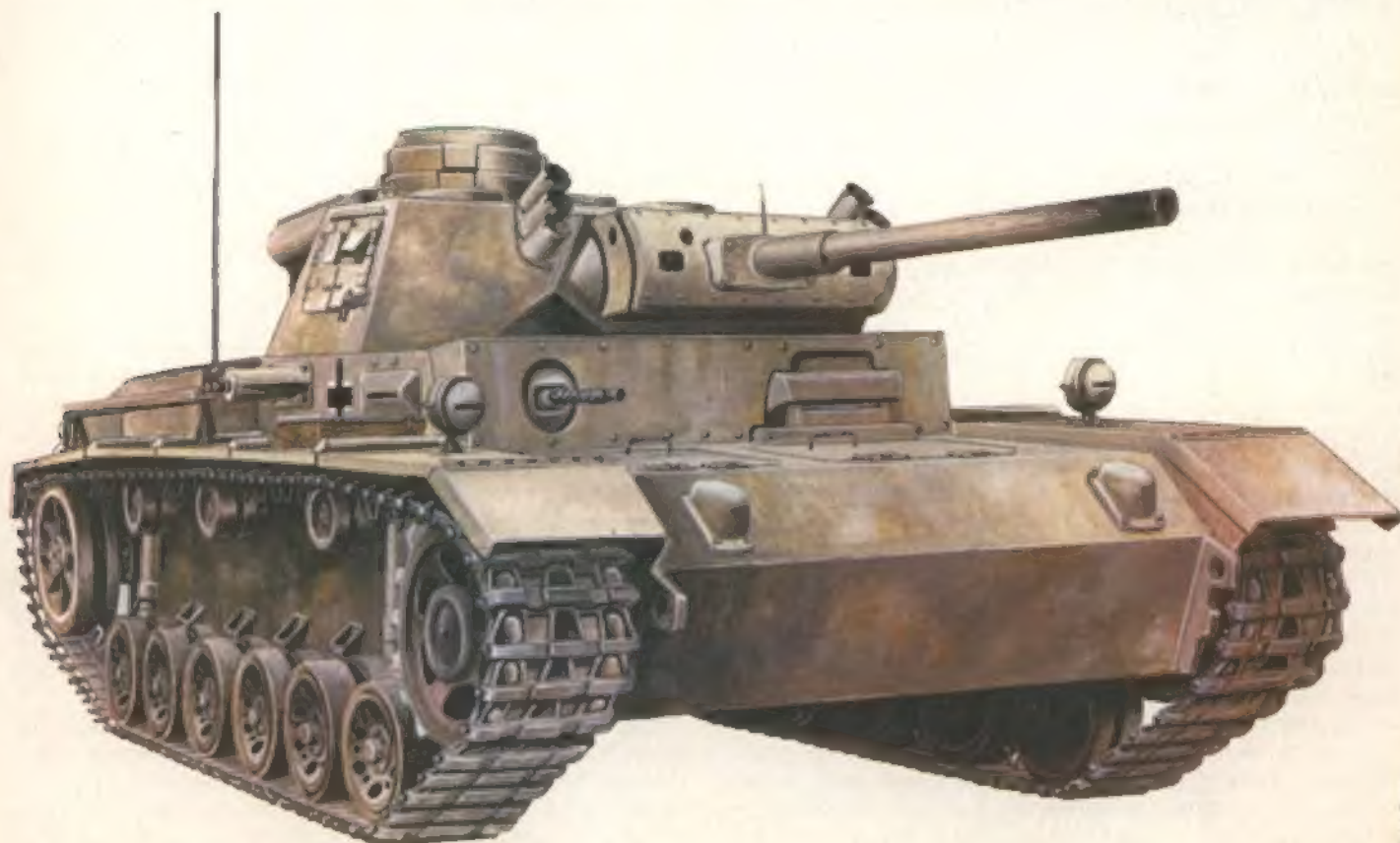
Peter Saxon

officer wrote subsequently, 'we moved virtually nowhere — we stood still. It was like Verdun in 1916. There was a little village called Teploye. We saw it first on the second day and we never saw it more clearly than then. Thick black smoke from brewed-up tanks blew about and each time the smoke cleared away we saw Teploye again, but it was like a mirage. We never got any nearer.'

In the south, Hoth's forces gained ground by advance detachments of infantry and grenadiers, but only at great cost. During the night the defenders withdrew and the front line was shelled throughout its length. Paul Hausser, commander of the three SS divisions *Leibstandarte*, *Totenkopf* and *Das Reich*, wrote afterwards: 'Again and again we

showed this weakness of tactics that made us insist on holding ground that had been too easily gained. Having chased Ivan out, we should have withdrawn ourselves and let him bombard the place out of existence. Then we could have moved the armor forward relatively safely.'

This lack of imagination, which was characteristic of German planning, in this particular case won an undeserved reward. During the night a cloudburst caused an immediate overflowing of the Pena and its tributary streams and turned the ground into an impassable morass. But for this, all the tanks would have been moved up into the line of bombardment. Even as it was, the losses were considerable because of the difficulty of taking up camouflaged positions,



Tony Bryen



△ General N. F. Vatutin, described by Marshal Zhukov as a brilliant and courageous soldier. In 1943, Nikita Khrushchev was his political aide. After Kursk, Vatutin died in mysterious circumstances at Kiev in 1944.

▽ The Lavochkin La 5FN ground-attack fighter-bomber. The Red Air Force first used this versatile 435mph aircraft in successful operations against the Luftwaffe's Me 109G and FW 190s at Kursk. It was armed with two 20mm cannon.

▽ German Grenadier troops riding on Panzer III tanks of the SS Totenkopf division during the southern pincer drive at Kursk. They are following up behind heavy Tigers and Panthers of the Panzerkeil 'wedge' attack. The swastika flag on the rear of the right-hand tank serves as a recognition sign to the German close-support attack fighter-bombers of the Luftwaffe.



Robert Hunt Library/National Archives

so that when daylight illuminated the swamped valleys the Red Air Force easily picked out the stranded tanks and attacked.

Luftwaffe Stukas attacked too and had considerable success in demolishing Russian artillery batteries, but as one pilot, Hans Rudel, has recorded, 'The Russian guns were almost as numerous as their mines, and the camouflage was masterly . . . you had to assume that every copse was a gun battery and dive down to treetop level . . . four times out of five you found you scored a hit on a 76 . . . if it didn't get you first.'

This success, however, did little to neutralize the trouble that faced the tanks on the morning of 5 July. The whole of 48 *Panzer* Corps — 3rd and 11th *Panzer* divisions and *Gross Deutschland* — were ordered to move up from the bombarded villages to the next Russian line of defense and capture Ssyrzew and Ssyrzewo, which lay beyond the Pena river, and wheel round to the north-west to capture the wood at Beresowka and the three small hills that lay beyond it. The floods from the cloudburst, however, made this impossible without the aid of engineers to bridge the river and the flooded cornfields on either side of it, and the engineers were continually harassed by snipers and Soviet planes. As the grey day advanced, the dense formation of tanks along 48 Corps' entire front was seen to be extremely vulnerable — many of them bogged down because they had approached too near the swamped ground round the

Pena, and all of them on open ground that made them easy prey for aerial attack.

The three SS divisions on 48 Corps' right were more fortunate. The ground over which they attacked was slightly higher and much of it was outside the cloudburst area, so that the hazard of swampy ground was considerably reduced. Sepp Dietrich of *SS Leibstandarte*, a commander of great skill and daring, forced his tanks forwards some seven miles during the day, knocking out 27 T34s in his advance. By late afternoon his patrols reported the village of Gremutshy clear of enemy, but Dietrich was not to be caught in the lure of a deserted objective. He halted his tanks, got them hull down in folds in the ground and saw that they were well camouflaged. His cunning was rewarded. At sunset the bombardment of Gremutshy began and continued till midnight. Then the whole of the *Leibstandarte* moved forward — without having lost a single tank in the baited trap. Gremutshy had been reduced to a smoking ruin by shelling. Its thatched cottages still blazed fiercely and dust rose in clouds from the rubble as, in the moonlight, Dietrich's tanks skirted the razed village and got into position for a dawn attack.

Dietrich supposed, rightly, that the Russians believed their bombardments had disabled or destroyed many German tanks and that they were therefore unprepared for the attack. But, since surprise was of the essence, there was no time for such refinements as the clearing of minefields



Peter Sanson

and there were a good many casualties as *SS Leibstandarte* pressed on. But by midday the huge Panthers, which were impervious to 76mm fire except at point-blank range, had penetrated the Russian defensive positions south of Werchopenje and were making for Hill 260 a mile south of Nowosselowka — one of the objectives that had been unattained by 48 Corps. Their losses had been heavy, however — as much from breakdowns as from Russian attacks. The day ended with stalemate on that middle section of Fourth *Panzer* Army's front.

It was in fact only on the third day, 7 July, that any real success was achieved by the southern pincer. By that time the sun had dried out the swampy ground and the battlefield

presented a different, though equally desolate, appearance: miles of devastated cornfields, hundreds of burnt out tanks of both sides, and the bodies of the dead already swelling obscenely in the heat. A soldier's diary records, 'One man had been caught by bomb blast while squatting in a ditch with his trousers down. It seemed the ultimate in humiliation.'

The minefields had created great devastation and the blackened flesh and bones of those who had been blown up were strewn grotesquely over the battlefield: 'Coming stealthily upon a small copse I looked warily up to meet the face of a sniper poised in a tree. Panic-stricken I fired my pistol up at him before he could get me; but it was just a

A Russian bludgeon against the German Panzers. The SU152 heavy assault gun, nicknamed 'Conquering Beast' by the Red Army. Weighing 50 tons, its 152mm howitzer's nine-mile range was too much for the German armor. It made its battle debut in the Kursk operation.



Peter Sanson

head, a blown-off bodiless head, still — it seemed to me — smiling craftily, that had lodged in the branches there. When I climbed up I dislodged it and it fell to the ground with a thud, the crafty smile undisturbed.'

By this time, the Russians had moved back into the ruins of Gremutshy in preparation for a counter-attack. While they were forming up for this, 48 *Panzer* Corps launched their delayed attempt to make their two-pronged wheel to the north-west. They caught the enemy by surprise, broke through on both sides of Ssyrzew in great force and caused havoc among the assembling Seventh Guards Army, which fled in disorder to shelter behind Hill 243 beyond Werchopenje, losing 70 tanks and artillery pieces in the carefully timed and aimed German barrage.

With the ground clear before them, *Gross Deutschland* now gained momentum and wheeled round to Ssyrzewo with only the most minor casualties. The Russians seemed for the moment nonplussed. But by afternoon they had recovered and launched their counter-attack on Ssyrzewo. It resulted in a head-on collision in which 500 tanks simply faced each other and went on firing until, after several hours, the reverberation of guns along the steep banks of the Pena diminished and night fell on the still-blazing hulks.

No ground had been gained by either side, and it became clearer than ever that the chief characteristic of the Battle of Kursk — which town, though less than 40 miles to the north, remained to the Germans as remote as the moon — was the huge wastage of men and arms in a fight that lacked any subtlety of direction. Mass was posed against mass in a conflict that, in theory, should have been brief and sharply decisive, but in five days showed no sign of reaching a climax.

The feeling of failure

Dietrich, one of Hitler's oldest friends, said in one of his rare criticisms of the Fuehrer, 'Perhaps the feeling of failure had permeated the troops on the Russian front since Kharkov. Not to be able to clinch the victory then was a bad thing. Then Hitler's uncertainty was a sign. The conflict between the top commanders was another. There were personal feuds. Kluge and Guderian hated each other; they nearly came to blows once. Hitler's intuition was always right, and he should have allowed it to overcome the pressure of the generals who wanted Zitadelle to go on for their share of the glory. Also, the way the Russians poured men and machines into the fray was absolutely unlimited. They simply had a disregard for numbers. It didn't matter to them that they were losing a million. Another million were packed behind them ready to be fed into the battle machine.'

It was true, although it could hardly be said that Hitler was sparing in his expenditure of men and machines either. But his was the expenditure of desperation, and the Russian High Command knew this very well. Viewing the battle in retrospect Stalin declared to the Supreme Soviet: 'We were an immovable mass against which the Fascists tried to pitch an irresistible force. A scientific impossibility in any case. But they were out-manoeuvred by our generals also. They never had a chance.'

That was untrue. There were a number of occasions when Russian tactics were as unimaginative as the Germans', and many more when the jaws of the pincer seemed to be closing. But it was always a piecemeal closure by isolated units, never a concerted forward movement. The shoulder-to-shoulder positioning of Hoth's entire Fourth *Panzer* Army within a 30-mile front had packed a punch that could

hardly have failed. Yet it was a punch that was weakened by circumstances that should have been anticipated. Such simple devices as the lure of the abandoned village were overlooked, and the enemy's ability to contain Model's northern force in, so to speak, a salient within a salient was not appreciated. This last factor dealt the death blow to the whole operation. With every abortive attempt Model made to press southward it became increasingly difficult for Hoth to link up with him. 'The Russians have learnt a lot since 1941', he told Manstein, 'They are no longer peasants with simple minds. They have learnt the art of warfare from us.'

Wherever they had learnt it, their knowledge was nowhere more apparent than in the intense fighting that took place around the railway junction of Orel, north of the salient. The Russian Third Army had forced its way forward with the object of encircling Model's Ninth Army in a sweep to the south-west. In that objective it failed, but it did keep most of Model's infantry and artillery engaged in defense instead of attack. The German infantry were thus unable to lend support to the southward armored thrusts that were meant to link-up with the Fourth *Panzer* Army on the heights east of Kursk. For three continuous days and nights from 9 to 11 July, Orel in the north and Belgorod in the south—where the



Soviet troops thumb a ride with a company of T34 tanks, part of the Russian counter-offensive of August 1943 against the German Fourth Army north-east of Kharkov. The Fuehrer eventually cancelled Operation Zitadelle after 20 divisions had been wiped out.

Seventh Guards Army was attempting a similar tactic to split the SS divisions from their supporting battle group in 48 *Panzer* Corps — were subjected to bombardment after bombardment. 'It was a continual earthquake', one eyewitness put it, 'The ground just split asunder and any tank on the move would tip into the fissure.'

Yet another blow was delivered by the Red Air Force, which succeeded in bombing the German supply base at Poltava and destroying the railway line to Kharkov, making lengthy and delaying engineering work necessary. There was no doubt that, whether newly learnt or not, the art of warfare was much in evidence in the Russian designs.

By the time both German pincers had been fighting uninterruptedly for a week, they were showing signs of exhaustion. A shortage of supplies and ammunition, abetted by the cutting off of the railhead, was also making itself felt. But on the left flank of the southern pincer they managed to drive the enemy off the main road from Rakowo to Kruglik and head for the Beresowka forest. Once that objective was attained there was a good chance of capturing Hill 247 with

the help of the north-west sweep of the SS division on the right flank, which was intended to wheel round from Hill 260 south of Nowosselowka and make a synchronized attack on Hill 247 from the east.

During the night of 9 July the 3rd *Panzer* Division entered the village of Beresowka from the west, much reduced in numbers — at least a third of its heavy tanks lay burnt out on the battlefield — but tenaciously holding on to every inch of ground it had fought for up the Kruglik road. Help was on its way in the form of one regiment of *SS Leibstandarte* that was making its way unopposed across open country from Werchopenje. Rudolf von Ribbentrop, son of the German Minister, was in command and reported later that he had got to within half a mile of the woods north of the village when a strong Russian counter-attack met them. 'Russian tanks of all sizes came streaming out of the forest and fanned out to meet us,' he said, 'Visibility was bad because of the corn-fields, but there was a battle royal and we shot up two of their big mobile guns before the *Luftwaffe* came in to help.'

As one of the pilots described it: 'In the first attack four tanks explode under the hammer blows of my cannon; by evening, after four more sorties, the total rises to twelve. The evil spell is broken, and in the Stuka we possess a weapon

conclusion of the offensive and the transfer of forces to the western theater. For, by 12 July, the Allies had landed in Sicily.

The climax to the battle of Kursk was reached during the two days 12 to 14 July, although it amounted to only the fadeaway ending of a battle of attrition. For nine days the two contestants had been slugging at one another like heavyweights swinging giant blows that consistently failed to achieve the knockout.

Early on the morning of 12 July, Hoth summoned his corps commanders and planned for a breakthrough before the Russians could intensify their defenses between Kruglik and Nowosselowka and build up their forces for a big push southward. He had received intelligence reports indicating that the extreme southern tip of Army Group South's fortified line along the Donetz and Mius rivers, between Taganrog and Stalino, was under the threat of a Russian attack. 'We shall be needed there', he told Hausser, commander of the SS Corps. 'Let us finish the issue of Kursk once and for all.'

Brave words. His armored strength consisted now of only 600 operative tanks to spearhead the attack. Every man in Fourth Army was suffering from battle exhaustion, and



which can speedily be employed everywhere and is capable of dealing successfully with the formidable numbers of Soviet tanks.'

This was wishful thinking on his part, however. Nothing could deal wholly successfully with the huge number of Soviet tanks. On every section of the battlefield those that were destroyed or immobilized were replaced with seeming magical rapidity. Supplies were endless 'and appeared from nowhere', as Manstein told Hitler at a conference at the Fuehrer's headquarters on 12 July. By that time the railhead at Poltava was operating again, but there were no endless supplies coming from Germany. The enormous force of fighting vehicles with which Manstein and Kluge had opened the battle to close the Kursk salient had been depleted by more than half. There was continual activity at the repair shops to get into some sort of fighting order those tanks — especially Panthers and Tigers — that had been retrieved from the battlefield. An equally continual effort was made to overcome the successes of the Soviet aircraft in attacking the ammunition trains for which every German tank still left in the field was desperately waiting.

It was now being proved only too clearly that Hitler had indeed put in hazard far more armor than he could afford to lose. Although no resolution of the Kursk conflict could yet be seen, developments in Europe were calling for a speedy

ammunition was at a premium. In contrast, Vatutin had new machines, including the new 85mm SU85 self-propelled gun, and men fresh to the front. He also had the entire Fifth Armored Army in reserve and ready for action. It was not difficult to see where the advantage lay. This climactic action came to be known as 'The Death Ride of Fourth Panzer Army.'

'It's a fine day for a joy ride', Sepp Dietrich said laconically to the driver of his command tank. 'It won't rain.'

Nor did it. It was a day of intense dry heat. The interiors of the tanks were like ovens despite the air induction systems and fan coolers. The high speed traffic of heavy vehicles over the sandy roads threw up clouds of dust that made it virtually impossible for the *Luftwaffe* to pick out their targets. On one occasion, according to Dietrich, a T34 and a Panther collided head on as they rolled through the dust. 'Ivan had broken through our anti-tank screen and his progeny were streaming like rats all over the battlefield . . .'

The 'all over' certainly suited the situation. The Fifth Armored Army had come charging into action with all the zest of experienced troops who had waited too long in reserve positions. As the spearhead of the *SS Panzer Corps* rolled towards Prokhorovka it met the full force of this fresh and eager force. Slightly outnumbered, but with more heavy tanks, Hausser's exhausted tank crews met their match. The



Robert Hunt Library/Bundesarchiv

The haggard eyes of this German NCO, a member of the Gross Deutschland division, show the strain of battle. Near-exhausted, he and his comrade study a tactical plan in preparation for the next move in the battle of Kursk. Ribbons of previous campaigns adorn the man's uniform.

thick dust prevented the Tigers from making full use of their superior range, and many fell prey to the T34s. The battlefield was littered with burning wrecks — more than 300 tanks were lost by each side. But it was the Germans who could least afford such heavy losses. The onslaught of the *Panzers* was over. By evening the Russians had recaptured Berezowka and cut off 3rd *Panzer* Division and a large wedge of *Gross Deutschland* that had forced its way through the woods to the rescue.

For the Germans, the battle was clearly lost. All the open country between Belgorod, where Seventh Guards Army had broken through as far as the rear echelons of the SS corps, and Orel to the north was possessed by the Russians. Only isolated pockets of Germans were evident in the villages.

From the three hills so fiercely fought for and now relinquished by the Germans, the Russians had a straight line of fire down on to the irrepressible attackers, whose commanders were continually reminding themselves of the Fuehrer's words: 'It must not fail'.

Nevertheless it did fail. The immediate cause of failure, or anyway of termination, was the Fuehrer's own order, relayed through Manstein and radio link to Army Group South's headquarters: 'Operation Zitadelle is cancelled forthwith'.

It is of course impossible to stop a raging battle instantaneously unless both sides are given the same order. A withdrawal meant fighting a rearguard action, and it was two weeks before Hoth's forces got themselves back to their original positions on the starting line — with further considerable losses. In the north, Model's Ninth Army,



Robert Hunt Library/Bundesarchiv

*A near miss as Soviet anti-tank gunners await the German armor at Kursk. The Red Army's 45mm gun would not pierce the *Panzer* armor: their aim was to cripple the tanks by disabling the tracks and forcing them to stop. Russian tanks and infantry would then attack the static targets.*

having advanced so little, had correspondingly little to cover in retreat. The situation at Orel was still critical, however, and Manstein had to order two *Panzer* divisions north to help deal with this threat. He sent two more to the south, where the Taganrog-Stalino sector was also being increasingly threatened.

During the whole of the operation, from H-hour to cancellation, the advances made by the two jaws of the pincer, collectively or by individual units, had never reduced the breach across the base of the salient to less than 60 miles. Twenty *Panzer* divisions, the pride and joy of the *Wehrmacht*, had been bled white, and although on the credit side could counted be the huge number of Russian prisoners and the vast booty and destruction of the battlefield it was only too clear that with Allied assistance the Russians could afford losses on this colossal scale far more easily than the Germans could.

Aftermath

The Death Ride of the Fourth *Panzer* Army signalled the approaching end of the German struggle for Russia. By December, the reconstituted Ninth and Fourth *Panzer* Armies had been pushed back to, and beyond, the Dneiper. The whole of the Eastern Front from Nevel in the north to Kirovograd in the south reflected the turning of the tide, for it had been subjected to unremitting Soviet attacks against the weakening power of Hitler's armies. Now, not even a stalemate could be achieved. The Kursk gambit had been played and had failed.

Alan Wykes

TIGER MK1 AND MK2

The 'unstoppable' Tiger earned an awesome reputation on three continents. Did its performance match the legends?



A Tiger I near completion on the Henschel assembly line at Kassel, central Germany. The huge turret, just fitted to the hull, carries the biggest tank gun yet designed —

the 88mm KwK 36, L/56. This June 1943 production line is rolling off Tigers for the Kursk offensive, less than a month away. More than 200 were used to spearhead it.

The German Tiger tank was one of the most feared weapons of World War II. It was so heavily armored that, in an early encounter with the Western Allies in Tunisia in 1943, it shrugged off eight rounds from a 75mm gun fired at a range of 50 yards. The aura of invincibility that such incidents earned it was not wholly justified — the Tiger *could* be stopped, by its own weaknesses as well as by enemy action. But it was still the most formidable fighting vehicle of its

time, and an outstanding example of tank design by any standards.

The development work which led, by a roundabout route, to the production of the Tiger began in 1939. It was accelerated in May 1941, when the German Army called for a 45-ton vehicle to mount a tank version of the 88mm flak gun — which would, in theory, be able to outshoot the heaviest Russian tanks of the time. The army's designation

for the new tank was VK4501.

With the order came a stipulation that the prototype was to be ready in time for Hitler's birthday on 20 April 1942, when a full demonstration would be staged.

Time was limited, and the contractors decided to adopt the best features of prototype tanks on which they had been working — amid a confusion of ever-changing specifications — since 1939. The Henschel company began with their 30-ton VK3001 (H), a good vehicle on which it had been planned to mount a 75mm gun, but which had been made obsolete before it reached the production stage by the appearance of the Russian T34. They also used some features of their 36-ton VK3601 (H). Two models of the new tank were to be built, type H1 mounting an 88mm gun, and type H2 a 75mm.

Their competitors, the Porsche company, decided to use features from their previous model, the VK3001 (P) — or Leopard Type 100 — which had performed well in trials.

The demonstration of the two competing prototypes, the VK4501 (H) and VK4501(P) Type 101, duly took place before Hitler at Rastenburg on 20 April 1942, and the Henschel design was found to be superior. Very conventional in layout and construction despite its big size, it was more suitable than its rival for mass production, which began in August 1942. The vehicle was designated *Panzerkampfwagen VI Tiger Ausf. H* and the ordnance number was *SdKfz 181*. (In February 1944 its designation was changed to *PzKpfw Tiger Ausf. E, SdKfz 181*.)

Tiger 1 was the first German combat tank to be fitted with overlapping road wheel suspension to give the best weight distribution which resulted in a comfortable and stable ride for a tank of the Tiger's great weight and size. Two types of track were used; a 'combat' track, 28½ in wide, and a narrow 20½ in wide track for travel and transportation.

But the system had its drawbacks. The interleaved wheels could become packed with mud and snow during winter fighting and, when frozen, this could jam the wheels. The Russians discovered this and timed their attacks for dawn when the vehicles were likely to have become immobilized by freezing snow or mud during the overnight lay-up.

The Tiger was originally fitted with a *Maybach V-12* petrol engine of 21 litres capacity, but it was underpowered and, from December 1943, an engine of 24 litres was substituted. In North Africa and southern Russia, Tigers were fitted with an air-cleaner system called *Feifel*, but it was discontinued (an economy measure) on vehicles built in 1943. The gearbox had eight forward gear ratios which, with the pre-selector, made the Tiger very light and easy to handle for a vehicle of its size.

Due to its great weight — too much for the average road bridge — the Tiger was designed to cross rivers by wading in up to 13ft of water with the *snorkel* breathing equipment provided on the first 495 vehicles produced. But this was abandoned on all subsequent vehicles (again for economy reasons) leaving them able to operate only to a depth of 4ft.

One of the Tiger's biggest advances over any previous tank design was in its method of assembly. For simplicity, and to allow the use of heavy armor, flat-section armor plate was used throughout the hull. Front and rear superstructure was in one unit, and interlocking stepped joints, secured by welding, were used in the construction of both the lower hull and the superstructure. The top front plate of the hull covered the full width of the vehicle, and it was this extreme width which permitted a turret ring of 6ft 1 in diameter, which was of sufficient size to accommodate the breech and

mounting of the 88mm gun. The belly was also in one piece, being a plate one inch thick and 15ft 10½ in long by 5ft 11 in wide.

Internally, the hull was divided into four compartments, two in the front for the driver and the bow gunner/radio operator respectively, a center fighting compartment and a rear engine compartment. The driver sat on the left and operated a wheel which acted hydraulically on the Tiger's controlled differential steering unit. Two emergency steering levers were placed on either side of the driver. A visor was provided for the driver, who also had a fixed episcopes on the escape hatch. A gyro direction indicator was on the left, and an instrument panel on the right, of the driver's seat. Also on his right, the gearbox separated his compartment from that of the machine-gunner/radio operator.

The Tiger was in production for two years, from August 1942 until August 1944, and in this period some 1,350 vehicles were delivered out of 1,376 ordered. Maximum monthly production was achieved in April 1944, when 104 Tigers were built.

The 88mm gun, the Tiger's main armament, had ballistic characteristics similar to those of the famous Flak 18 and Flak 36 88mm guns from which it was derived. Modifications were the muzzle brake (the breech mechanism reached almost to the inside rear turret wall) and electric firing by a trigger-operated primer.

Secondary weapons were two 7.92mm MG-34 machine guns. One was mounted in the left side of the mantlet and was fired by a foot pedal operated by the gunner. The other was mounted in the front vertical plate for operation by the radio operator. Sighting was by a cranked periscope.

The Henschel Tiger could have been the best quality tank ever to be mass produced. It was extremely expensive — each tank cost 250,800 marks, weapons excluded — and was heavy on man hours. But as the war progressed quantity took precedence over quality.

The Tiger in action

The Tiger was designed for use as an infantry, or assault, tank. Tiger battalions were organized as independent units under Army or Corps HQ, rather than divisional, control. *Panzer* divisions engaged in a major operation would be allocated a force of Tigers to spearhead an attack. But because the Tiger was slower-moving than a medium tank, and slower to traverse its turret, medium MKIIIs and MK IVs were sometimes used to cover the Tigers' flanks. This *Panzerkeil*, or tank 'wedge' was first used on a large scale in the Kursk offensive in 1943.

The Tiger first saw action on the relatively quiet Leningrad sector of the Russian front in August-September 1942, manned by Tiger Battalion 502. But it did not shine against the Soviet anti-tank gunners when attacking, especially in this unfavorable terrain of narrow, swampy forest tracks. In defense it was a different story. On 12 January 1943 a Tiger

△▷ *Tiger 1s at speed in the battle for the Kursk salient. The lead tank commander peeps cautiously from his turret cupola, ready to dive below should Soviet fighter-bombers appear. Low level attacks would strike suddenly.*

▷ *Loading 88mm shells into a Tiger I — not an easy task with a large number of rounds each weighing 20lb. The Tiger had a capacity of 92 rounds, half of them armor-piercing and half high explosive, and making an ammunition load of ¾ ton. In the cramped interior of a tank, careful stowage is essential for smooth operation of the gun.*



Robert Hunt Library



Robert Hunt Library

company of four tanks, with eight escorting Mk IIIs, counter-attacked against a Russian drive to reopen the land supply route to Leningrad. Within minutes their 88s had knocked out 12 of the 24 attacking Russian T34s, which had initially overrun the German infantry, and sent the remainder scuttling back. Rock-hard soil, frozen by a temperature of -28°C , had enabled the Tigers to maneuver.

The Western Allies first met the Tiger exactly a week later in Tunisia, where Tiger Detachment 501 led a spoiling attack against a Free French Moroccan division. The French were dumbfounded to watch the impotence of their 75mm gun at 50 yards range; eight shells either ricocheted off the tanks' armor-plate or broke up harmlessly against it. On 28 January, British and American 57mm anti-tank guns had better luck by firing at the Tiger's tracks, disabling two of the monsters.

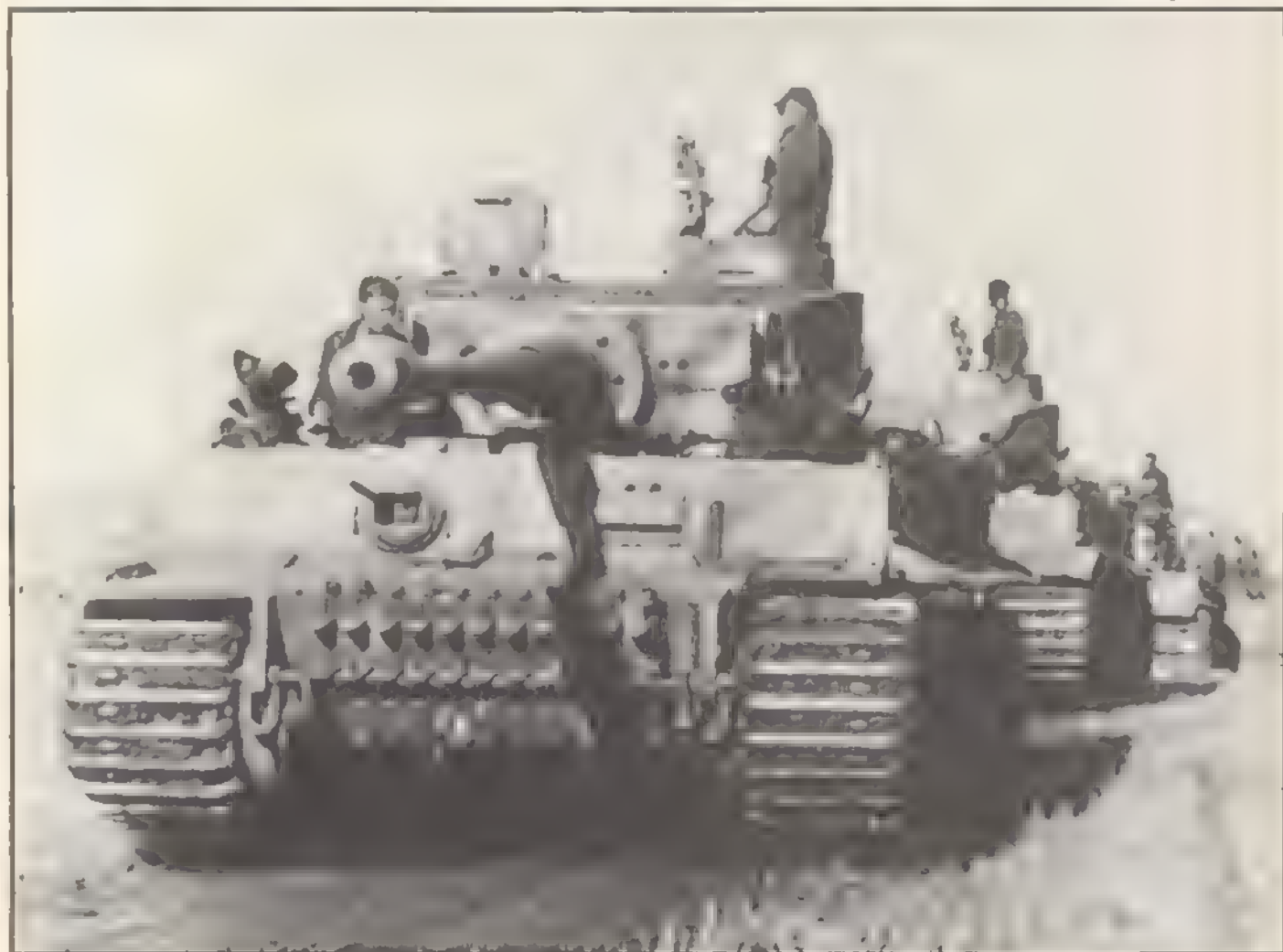
These first Tigers in North Africa had some fearful teething troubles on winter roads with rivers in spate. A number of their engines broke down after 150 miles and even a 60-mile trip might eat up 180 gallons of fuel. However, even with fewer than 30 tanks, 501 Detachment made their presence felt as the Germans fought to retain their foothold on the African continent. Against 'green' American troops in the Faid Pass, and during Operation Oxhead against the less dismayed British, the Tiger proved a formidable weapon. On 26 February, a Tiger was first to break into the Sidi Nsir

defenses. It repulsed six-pounder anti-tank fire, destroying two of them — and then disabling itself by reversing on to a minefield! The next day at Hunt's Gap, it took the combined efforts of Hurricane tank-buster aircraft and 5.5in medium artillery to stop them.

In their first large-scale deployment, against the Russians at Kursk in July 1943, the Tigers had no luck at all. A hundred Henschel Tigers and 90 of the 65-ton *Porsche Ferdinand/Elefant Jagd-Tiger* assault guns (a Tiger variant) headed respectively the northern and southern pincer movements on which Hitler's hopes of success in Operation Zitadelle rested. The *Elephants* came to grief from a lack of secondary armament, and many *Tigers* suffered mechanical failure due to their premature release from the factories. And in the great head-on tank battle of 12 July, the Tiger's ability to kill a T34 at 2,000 yards was matched when the Russians closed to point-blank range.

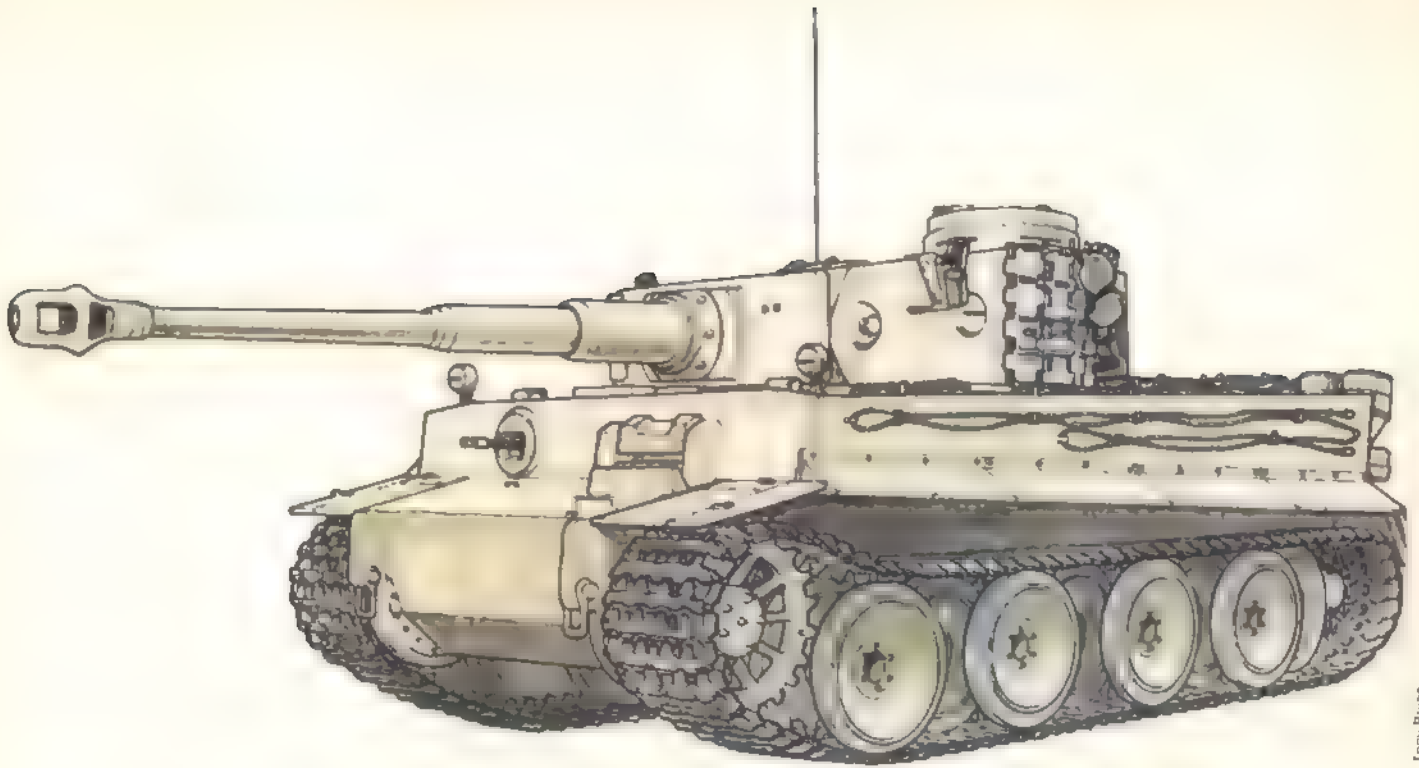
But from the autumn of 1943 onwards the Tiger, although designed as an assault tank, began establishing its legendary reputation as the *Wehrmacht's* most formidable defensive weapon. On 18 October, a lone Tiger accounted for 18 Soviet tanks — a feat which earned Sergeant Sepp Rannel of *Panzer Regiment Gross Deutschland* a Knight's Cross; he was one of the first Tiger 'aces'.

Another 'ace', with 119 claimed victories to his credit on the Eastern Front, was *Obersturmfuehrer* (lieutenant)



'One battalion is worth a normal Panzer division' — that was Hitler's evaluation of the Tiger. This column is advancing to meet yet another Russian attack in August

1943. The gunners and loaders have emerged through the hatches for a rare gulp of fresh air. But the commanders are awaiting orders via their headphones.



Fony Bryan

△ The massive, 56-ton presence of a Tiger Mk I. Even with the weight of its sloped armor, 4in thick in front, the Tiger had a top road speed of 23mph. On the turret sides are six 90mm smoke-dischargers to aid concealment.
 ▷ A Waffen SS Obersturmfuehrer (lieutenant) of the Totenkopf 'Death's Head' (3rd) SS Panzer division. On his left arm is the SS national emblem. Most Tigers went to these elite troops of Hitler's private army.

Michael Wittmann, of 2nd Company, 501st SS Heavy Tank Battalion. He was soon to figure in the most famous Tiger action of all.

501st Battalion was transferred to France to help repulse the Allied invasion of Normandy, although it had only 36 Tigers available. On 13 June 1944, a week after D-day, following a drive from Beauvais under repeated air attack, Wittmann had just five operational Tigers on Hill 213 above Villers Bocage. His orders were to stop the advance guard of the British 7th Armored Division (the famous 'Desert Rats') from advancing through the township, outflanking the German line and gaining the road to Caen. From the cover of a small wood, Wittmann's own Tiger fired on and 'brewed up' the leading half-track, destroyed the last vehicle, and then knocked out the surprised British column piece by piece. In a hectic five-minute engagement, Wittmann's 88 and his two machine-guns left 25 armored vehicles ablaze, including at least four Cromwell tanks. Meanwhile, the other four Tigers on Hill 213 fired in support, and eight more from 1st Company clanked into Villers Bocage to wipe out another squadron of Cromwells.

In the street fighting that followed, Wittmann's Tiger had its track blown off by a six-pounder anti-tank gun, forcing the tank crew to bail out, and two more Tigers were destroyed by infantry PIAT projectiles. But by evening, Villers Bocage was in German hands, and the British had lost 25 tanks, 14 half-tracks, 14 Bren-gun carriers, and hundreds of men. It cost 501st Battalion six of its precious Tigers to take the village, but for weeks afterwards British attackers were cautious in their approach.

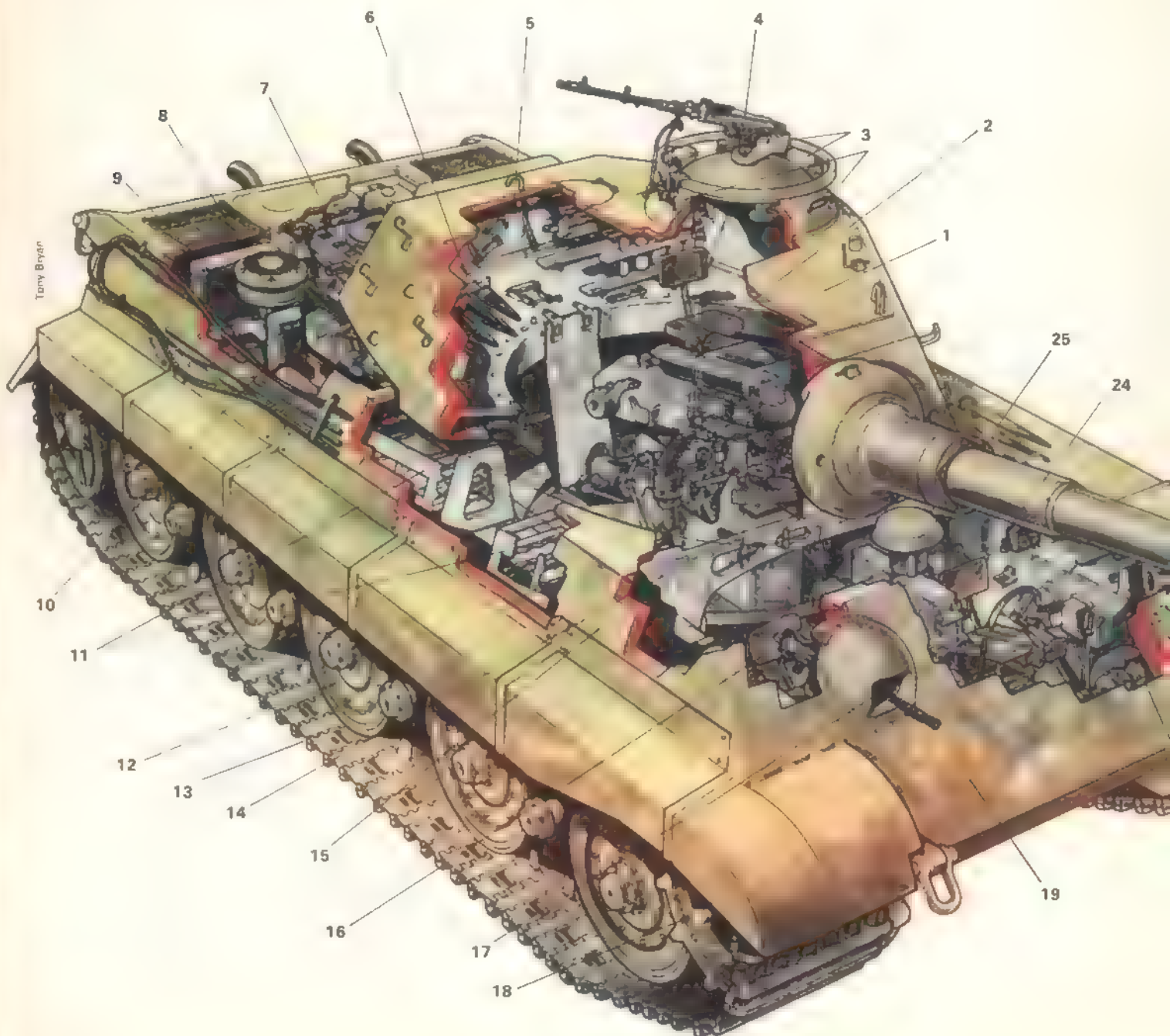


Malcolm McGregor

PzKw VI Tiger II (KOENIGSTIGER)

Weight: 68 tons Crew: 5.

- | | |
|---|---|
| 1 Turret, 360° traverse | 12 Steel-tyred wheels (eight each side) |
| 2 Commander's seat | 13 Track, 31½ in (79cm) wide |
| 3 Commander's periscope | 14 Forward bulkhead |
| 4 Anti-aircraft machine-gun, MG34: 7.92mm (2,925 rounds) | 15 Side armor, 3½ in (80.65mm) thick |
| 5 Rear hatch | 16 Machine-gunner's seat |
| 6 Ammunition for 88mm gun: 22 rounds | 17 Machine-gun, 7.92mm MG34 (2,925 rounds) |
| 7 Maybach HL 230 V-12 engine: 690bhp. Gears: 8 forward, 4 reverse | 18 Front wheel sprockets |
| 8 Engine-driven blower. Impels clean air through radiator | 19 Frontal armor, 3¼ in — 5⅞ in (100mm/150mm) thick |
| 9 Radiators (on either side) | 20 Disc-brake drum |
| 10 Fuel tank (one of seven). Total fuel carried: 210 gal (864 litres) | 21 88mm main armament, muzzle velocity 3,280ft/sec |
| 11 Side ammunition racks for 88mm (24 rounds each side) | 22 Muzzle brake to reduce recoil |
| | 23 Shock absorber |
| | 24 Driver's seat |
| | 25 Spare 88mm ammunition |



Other Tiger units were scoring successes out of all proportion to their numbers. In their first action, on 11 July, the 3rd Company, 503rd Battalion, fought 20 British-crewed Shermans. Without loss, the Tigers knocked out 13 and captured two. Six days later during the attempted British tank breakout to the east of Caen the same unit, caught in the bombing of Cagny village, was literally buried in the ruins after 650 tons of bombs fell around them. But six out of eight Tigers still emerged to fight after only an hour's frenzied repair work. They harassed the flank of the British advance, imposing a brake on it, even though their superb optical equipment had been upset by the bombing.

But in the carnage of the Falaise Pocket, where trapped German armor was pounded by rocket-firing Typhoon fighter-bombers, the Tigers maintained their reputation. On 17 August, just two of them held up the whole spearhead of the 53rd British Infantry division.

The ponderous Tiger II, with turret armor equivalent to that of a heavy cruiser, first saw action on the Eastern Front in May 1944. Nicknamed the King Tiger by the Germans, the Tiger II did not reach the West until August of that year, when the Fuehrer then ordered all available Tiger IIs westward.

In September 1944, when Tigers were being built at the rate of 100 a month, the Henschel works at Kassel was bombed by the 8th USAAF. By December, 200 production Tigers had been lost and only 100 were available to lead the Ardennes winter offensive.

Once again, although woefully inadequate in numbers, the Tigers had many successes. On the first day of the offensive, 16 December, the mere appearance of Tigers — which had in fact lost their way — caused the hurried

evacuation of Andler by a reconnaissance team of the US 14th Cavalry. These tanks were part of a battalion in Battle Group Peiper (1st SS *Panzer* Division) stiffening the German dash for the Meuse bridges. Moving down the winding, snow-covered Belgian roads, the Tigers provided the punch in the dawn attack that two days later seized the Stavelot Bridge. Next day, at Stoumont, Lieutenant Colonel Peiper rushed his Tigers down the main road to smash through the American defenses.

In retreat, under air attack, and running out of fuel, the Tigers, often dug-in to static positions, still compelled respect. At Stoumont on 21 December, a Tiger fired through the windows of the town sanatorium to clear it of Americans; these in turn sent four Shermans to return the compliment. At Bastogne on Christmas Eve, Tigers returned to the attacking role and ran amok within the US 101st Airborne Division's perimeter.

On 22 March 1945, along the Berlin-Kustrin road, the Tiger fought its last engagement in any strength. Three companies, with 28 Tigers and 27 Panthers — the Tigers' stablemate — endured 90 minutes of a Russian bombardment. This was followed by attack from a Soviet tank division. After the Russian infantry had been boxed in by German counterfire, the Tigers and Panthers repulsed the first armored thrust.

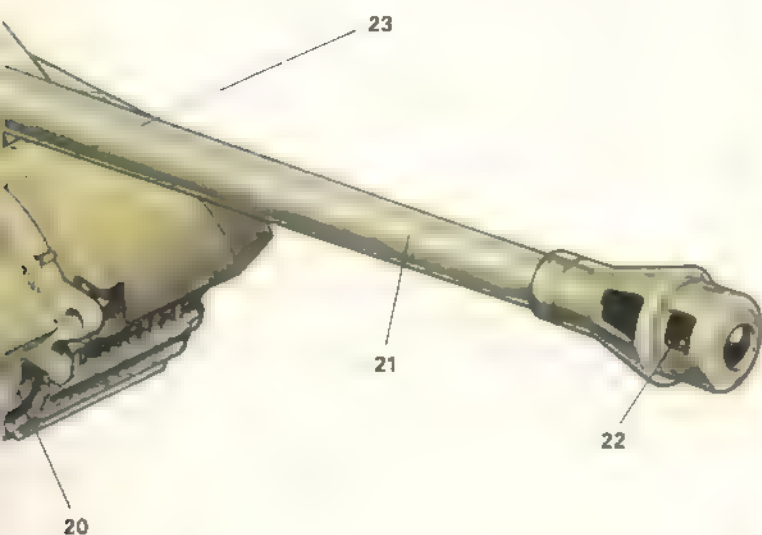
Next, the Russians tried smoke in an attempt to outflank the German tanks. The *Panzers* parried by a swift regrouping behind a ruined village. Then superlative gunnery smashed the Soviet T34s as they emerged from their own smoke-screen. Sixty Russian tanks were left blazing wrecks, and the *Panzers* held possession of the field.

But local successes of this nature could not disguise the fact that there were always too few Tigers. They could not alter the course of the tank war on two fronts. It was a case of high quality in small quantities against masses of quantity. Quality had small victories, but an enemy who could afford to sacrifice a dozen tanks in order to destroy one Tiger was not going to falter.

In its day the Tiger was the least vulnerable and most powerful armored fighting vehicle on the battlefield, possibly the last to enjoy such a marked predominance — both physically and mentally — over its adversaries. On the Western Front, the Tiger was countered by the British super-high-velocity 17-pounder anti-tank gun, which was mounted also in the Sherman Firefly — the only American or British tank of 1944 with any hope against the Tiger in one-to-one combat. The 17-pounder had twice the penetrative power of the old British six-pounder and was more deadly than the Tiger's own 88mm, but it was supplied in only limited quantities. The 60-pounder armor-piercing rockets of the Typhoon fighter-bomber were another proven 'antidote'. On the Eastern Front, the Soviet 100mm and 152mm heavy assault guns were the Tiger's match in fire-power, though not in armor.

Within weeks of the time that World War II ended, the Tiger's predominance as a tank would have been directly challenged by the lighter Josef Stalin III (122mm), the handier British Centurion Mk. 1 with its 20-pounder (84mm), and the faster US M26 Pershing, armed with a version of the 90mm anti-aircraft gun.

No weapon remains unchallenged for long. But the Tiger was a milestone in the art of linking fire-power, maneuverability and armor into a fighting unit.



HITLER AS STRATEGIST

'Blunderer,' his generals called him. 'Lunatic,' said his enemies. But history may see the Fuehrer as nobody's fool.



The invasion of Norway (1) was an example of Hitler's daring — and successful — strategy, as was his annexation of Czechoslovakia in 1938 (8). But when Germany invaded Poland (6) in 1939, Hitler assumed Britain and France would desert her. He was wrong — the Allies declared war. This was followed by the astonishing and brilliant breakthrough by the German army in France (4). A German invasion of Britain (3) was never a practical possibility, but Hitler had never counted on it anyway. His main objective, an attack on Russia, was deferred for a month by the need to invade the Balkans (12) — a move forced on him by alliance with Italy (11), which was certainly a major blunder. Crete (13) was captured by paratroopers in May 1941, but the losses incurred led Hitler to call off his invasion

of Malta (15), the island which threatened the Axis Mediterranean supply routes. Was the invasion of Russia Hitler's greatest blunder? His advance on Moscow (2) was a blitzkrieg failure, as his unsuccessful drive in 1942 for the Caucasus oilfields (10) was a disaster to his economy. When Hitler refused to withdraw from Stalingrad (9) he was probably wrong — as with the loss of 100,000 German soldiers in Tunisia (14) when defeat was inevitable. Failure at Kursk (7) in 1943 led Hitler to change his strategy. No longer did he think of victory by arms; he merely hoped that his opponents would weary and ask for peace. Hitler's erroneous disposition of forces to meet the Allied invasion of Normandy (5) was made in spite of his correct guess where Allied troops would land.



This view of Adolf Hitler's strategy is by A. J. P. TAYLOR, the well-known historian whose many published works include 'Bismarck', 'The Struggle for Mastery in Europe 1848-1914', and 'Sarajevo to Potsdam'.

June 1940 saw the total defeat of France. The strategy that accomplished this was largely of Hitler's making, and the victorious German generals hailed him as 'the greatest military commander of all time'. A year later the German armies invaded Russia. On 2 October 1941 Hitler announced: 'The enemy has fallen and will never rise again.' He seemed to have achieved what no man had ever done before and brought the entire continent of Europe under his sway. At the end of 1941 things began to go wrong. In 1945 Germany was in her turn defeated, her armies destroyed, her territories dismembered.

Hitler committed suicide before the war ended. The German generals survived. They rounded on their former hero. He was no longer seen as an inspired genius. He became an incompetent amateur, whose blunders lost Germany World War II. The German generals claimed that, left to themselves, they would have won it. The victors added their meed of condemnation. For them, too, Hitler was not only a monster of wickedness but the blunderer whose mistakes brought Germany to disaster.

Where does the truth lie? Was Hitler a strategical genius? Or was he a corporal who understood nothing of war? To answer these questions we need to understand what Hitler was trying to do and the means he used to do it. Hitler was not an ordinary politician, drifting from one problem to the next. He had a powerful, though untutored, mind that thought in long-range and systematic terms. Underlying all his policies and strategy was a single aim: to make Germany a world power.

In a sense, this aim was imposed on Hitler and on other German statesmen before him by events. Germany in the latter part of the 19th century had become an industrial

power of the first rank, ahead of any other European country and second only to the United States. But, apart from coal, she lacked the raw materials essential to continued greatness: she had inadequate iron ore, no oil, no rubber, no tin, no platinum and no bauxite. She must either go forward or she would go back. 'World power or downfall', the slogan invented by Kaiser William II, summed up the feeling of his time.

World power was Germany's aim in World War I. She challenged virtually all the other great powers at once. But the task was beyond her, and in 1918 she was defeated. Hitler, who had been a front-line soldier of the first war, drew the moral that next time Germany must concentrate on Europe. She must overcome her neighbors by guile or force and thus secure control of the raw materials of Eastern Europe and Russia. Only then could the struggle for world power begin.

Hitler came to power in the Depression year of 1933. To him, access to raw materials became an immediate and desperate need. Germany could not wait to rearm for a great war on the scale of 1914, even if she had the resources to do so. Hitler believed that he had the answer. He would not fight a great war, or even prepare for one. He would fight a series of small wars, thus carrying Germany almost unperceived towards the status of a great power. With his unrivalled capacity for deception he would tiptoe into greatness.

Thus, while his potential opponents were rearming for a great war 'in depth', Hitler rearmed Germany 'in breadth' — everything for the front line and no reserves for a second campaign.

This is the key to Hitler's strategy in the first two years of World War II. Far from wanting a great war, as is often alleged, Hitler was virtually the only statesman in Europe resolved to avoid one. Usually the aggressor power is the stronger, or thinks it is. Not so with Germany. Hitler aimed to get his blow in first, because he recognized that Germany was, in the long run, weaker than her potential enemies.

Strategy in disguise

Hitler's diplomacy before the war was already a form of strategy in peaceful guise. Within five years, between 1933 and 1938, he freed Germany from the stringent arms limitations imposed on her by the Treaty of Versailles, acquired Austria and dismembered Czechoslovakia. The German General Staff often trembled and advised restraint. Hitler insisted that Germany's opponents would yield, and time and again he was proved right.

By 1939, Poland was the only eastern neighbor that it remained for him to subdue. This seemed an easy task. Poland was not a great military power. Hitler assumed that Britain and France would abandon Poland despite the guarantee they had given her. Instead, when the Germans invaded Poland on 3 September 1939, Britain and France declared war. Hitler was faced with what he had been most anxious to avoid: war on two fronts.

This assumption that Britain and France would desert Poland was the first of Hitler's blunders. At the time it did not seem one; there was nothing they could do to aid Poland directly. Soviet Russia, whom the western powers had tried to involve, was neutral, but benevolently inclined towards Germany. The strategy of the Polish campaign owed nothing to Hitler, though he set up his headquarters behind the front; the German General Staff conquered Poland in little more than a fortnight without his guidance.



Hitler watches the German onslaught on Warsaw on 28 September 1939. 'The strategy of the Polish campaign owed nothing to Hitler... The German General staff

conquered Poland in a fortnight without his guidance.' In spite of their promises, Britain and France were powerless to help Poland, and did not even try.



Men of the Leibstandarte SS Adolf Hitler, the Fuehrer's personal regiment, stand over civilian prisoners taken in Poland in September 1939. The Western Allies might

have settled for a measure of independence for the Poles and Czechs, as the price of peace. Adolf Hitler would accept nothing less than total domination

Once more the Fuehrer's judgment had been vindicated Germany had won the first of her small wars

But Germany was still at war with Britain and France, though it was a war in which so far little had happened. The German generals considered war against France in conventional terms. Germany, they proposed, should either remain on the defensive or repeat the swing on the extreme right, through Belgium, that she had used in 1914. Hitler rejected both alternatives. If Germany remained passive, he saw Britain and France growing steadily stronger and the Allied shipping blockade beginning to tell. Similarly, an offensive on the extreme right wing would merely reproduce the

trench deadlock of World War I.

During the staff discussions Hitler pointed to the center of the French position in the Ardennes and asked: 'Can I get through there?' The staff officers rejected the idea and Hitler did not at first insist. But during the winter of 1939-40 the plan was taken up by von Manstein, one of the ablest German generals. Hitler backed Manstein, and between them they pushed the General Staff into agreement. The detailed planning for the offensive was done by the General Staff. But the idea had come from Hitler. It was his first intervention into the planning of operations — and it proved to be a stroke of genius.

A relatively minor affair displayed Hitler's gift for reading his opponents' minds and anticipating their actions. At the beginning of the war he had welcomed the neutrality of the Scandinavian countries as giving Germany access to the outer world. But early in 1940 he became convinced that Britain was planning to violate the neutrality of Norway. In this he was correct. The British government, inspired by Churchill, intended to cut the supply route for Germany's iron ore from Sweden which, during the winter months, started at Narvik.

The first British project for doing this was disguised as an expedition to aid Finland against invasion by Russia. When Finland was defeated, the British prepared to mine Norwegian territorial waters. Hitler was too quick for them. By a strategical stroke, which the German generals condemned as too daring, he proposed to invade Norway by sea, thus using sea power against Britain — the very power that claimed to possess it.

Beaten by a day

The British laid their mines on 8 April; German troops, who had set sail three days before, landed at the principal Norwegian ports on 9 April. So British attempts to aid Norway were a total failure (though ironically Churchill, who had been mainly responsible for the failure, became Prime Minister after the outcry that followed). German victory in Norway was the first practical vindication of Hitler's unorthodox gift as a strategist.

A greater success was to follow. On 10 May the Germans attacked on the Western Front. While the British and French striking forces were lured into Belgium, expecting a 'repeat' of Germany's World War I campaign, the main weight of the German attack fell on the weak French center. Three days later, on 13 May, German tanks broke through at Sedan. On 20 May they reached the English Channel, thus cutting off the British Expeditionary Force and the bulk of the French army. Though the British managed to evacuate the BEF and some of the French troops from Dunkirk, the campaign was hopelessly lost by the Allies. The French army disintegrated after some further brief engagements. On 22 June France signed an armistice that enshrined her almost total defeat.

This breakthrough was an astonishing achievement, the most brilliant of World War II. The French army was reputed to be the greatest in Europe. The Germans had no more than equality with their opponents, at a time when military planners thought an invader needed a five-to-one superiority for victory. Yet the Germans had destroyed the French even more easily than they had defeated the Poles. They had secured a mastery over all Europe from the Atlantic coast to the frontiers of Russia at trivial cost. The total German casualties in the French campaign were less than a single day's losses in some engagements of World War I.

There can be no doubt who deserved the credit for this unique stroke. The original idea was Hitler's, and his determination carried it through. Without it, Germany's defeat of France in 1940 would have been virtually impossible. It is not surprising that henceforth Hitler regarded himself as a strategical genius, and that the German generals hailed him as 'the greatest military commander of all time'.

There is something to be said on the other side. During the French campaign Hitler twice interfered in operations and showed a military caution that contrasted strangely with his political daring. He tried to slow down the dash of Guderian's tanks across Belgium, and for a few crucial days

he forbade his tanks to attack the retreating British outside Dunkirk. Maybe he had not shaken off completely his memories of World War I and thought too much in terms of great infantry battles. Maybe he failed to appreciate the total collapse of the French armies. In this case his caution is understandable. Thanks to his own principle of rearmament in breadth, the German army had no reserves. The second phase of battle against the French looked as though it would be tough, and indeed when the fighting ended the Germans had run out of their resources. But whatever the reason may be for this caution, Hitler never showed it again.

For precisely a year, from 22 June 1940 to 22 June 1941, Britain stood alone. But she survived. This was in part Hitler's doing or, if you like, his blunder. There are two explanations for it. The first is quite simply that Germany lacked the means to conquer Britain. Before the war Hitler assumed that Britain would remain neutral or even friendly; he made virtually no preparations against her.

So the projected German invasion of Britain in the summer of 1940 was never a practical possibility. It was a 'try-on', first by the German army and then by the *Luftwaffe* and, while the RAF's victory in the Battle of Britain was a big event to the British, it was almost a non-event to the Germans. Hitler, for one, took no interest in it. He retired to Berchtesgaden for a prolonged holiday and emerged only to announce that the projected invasion would not take place.

For similar reasons, Hitler had neglected the German submarine fleet. His naval advisers told him that Germany needed a minimum of 300 U-boats for war against Great Britain. When war broke out, Germany had 23 U-boats fit for Atlantic service, and the number did not much increase even when the Battle of the Atlantic was being waged.

The second reason for his unconcern was that Hitler attached little importance to the defeat of Britain anyway. He believed, rightly, that she could do nothing effective against Germany as long as she remained alone, and hence he deliberately ignored the increasing aid to Britain that the United States provided. Hitler also believed that Britain would sue for peace when she realized the hopelessness of her position. He thought that he had only to wait, and therefore never offered reasonable peace terms — no doubt another blunder, though at the time it did not seem one.

Target — Russia

What Hitler wanted next was not Britain, but Russia. He had resolved on an invasion of Russia even before the campaign in France was over. There was an ideological consideration — his hatred of Communism. There was his desire for *Lebensraum* — space for Germany to expand. And there were also practical considerations. The British, as Hitler saw it, remained in the war only because of their ultimate hope of a Russian alliance. A German conquest of Russia would destroy these hopes and drive the British to make peace. Moreover, Germany was largely dependent on Russian supplies, and Hitler believed that Russia would cut off these supplies if Germany were ever in danger.

In practical terms, a war with Russia was what Germany was equipped for. She had virtually no navy and an inadequate air force, but she had a great, victorious army. That army could either be demobilized — which really meant ending the war — or it could be used. Soviet Russia was the only theater where it could be used on a great scale.

We know the outcome and, therefore, regard Hitler's decision to invade Russia as his greatest blunder. This was



German defenders in the ruins of Stalingrad in November 1942. Hitler's strategy was at its worst here — for too long, he pursued the fantasy that from Stalingrad the

Russian armies might be encircled. But instead the Soviet forces broke through, the German armies were trapped, and Hitler had set out on the long, hard road to defeat.

not how it seemed beforehand. Nearly all qualified judges thought that the Russian campaign would be even easier than the French — that fighting would be over in a matter of a few weeks. No German general expressed doubts, as some had done before the invasion of France. The British War Office gave the Russian army ten days. Cripps, the British Ambassador in Moscow, said a month, and Dill, the CIGS, thought the Russians might last six weeks. US military intelligence reported to President Roosevelt when the invasion started: 'Germany will be fully occupied in beating Russia for a minimum of one month and a possible maximum of three.' Even Stalin himself thought, after a few weeks of war, that Russia was lost; he said: 'All that Lenin worked for has been destroyed for ever.' The sceptic should ask himself: given that Britain could not be invaded, and that Germany's strength lay in her army, what other course could Hitler follow if he were to win the war?

The German generals assumed that victory would be easy, and the invasion was badly prepared. There was little attempt to discover Russia's strength or the conditions in which the war would be fought. If Hitler erred, it was in relying on the German General Staff, which was supposed to be the best in Europe.

A different sort of blunder has also been laid at Hitler's door. He had fixed 15 May 1941 as the starting date for the invasion. Almost at the last moment he turned aside to invade Yugoslavia and Greece, and the invasion of Russia was put off until 22 June — with the loss of a precious month. But the invasion of Yugoslavia and Greece was not something Hitler wanted to do. It was something he *had* to do, after the follies that Mussolini had committed and the disasters that these brought on Italy. The Balkan operations were an unavoidable and, for Hitler, a most unwelcome step to protect Germany's southern flank. Perhaps Hitler's real blunder was to seek Italy's alliance at all.

The strategy of the Russian campaign was certainly faulty, but again Hitler's blunder was to leave things to his generals instead of imposing his will on them. The German armies had no clearly defined aim except to destroy the Russian armies in the field. The German General Staff expected great 'battles of the frontiers' that would last a month. The Russian armies would then disintegrate, and all the rest would be a matter of mopping up. The Germans won great victories — but the Russian armies did not disintegrate.

Late in July the German armies stood still, while Hitler and his generals debated what to do next. The generals wanted to drive straight for Moscow. Hitler insisted that Leningrad and the Ukraine must be conquered first. On 23 August he got his own way — the first time that he dictated strategy against German military opinion.

Afterwards, the German generals claimed that this decision lost Germany the war. But there were strong arguments on Hitler's side. A direct advance on Moscow would have created two highly exposed flanks. Even the capture of Moscow would not have deprived Russia of her essential resources, though it might have disrupted her railway communications. Conquest of the Ukraine, on the other hand, would give Germany control of Russia's greatest industrial region. The real blunder was political, not strategic: it was Hitler's complete failure, and that of the Nazis generally, to conciliate the local populations, and this failure made the exploitation of the Ukraine almost impossible.

The Ukraine was conquered in September 1941. The advance on Moscow was resumed in October. There were again great German victories, and three-quarters of a million Russian soldiers were taken prisoner. But in November snow fell, and the steppes turned to mud. The Russians threw in fresh divisions that they had moved from the Far East.

On 2 December some advanced German units reached the Moscow tram terminus and saw far off the towers of the



Robert Hunt Library/Bundesarchiv

Hitler planning the Russian war at his headquarters in August 1941. With him are (left to right) Field Marshal Wilhelm Keitel, an aide, Field Marshal Walther von

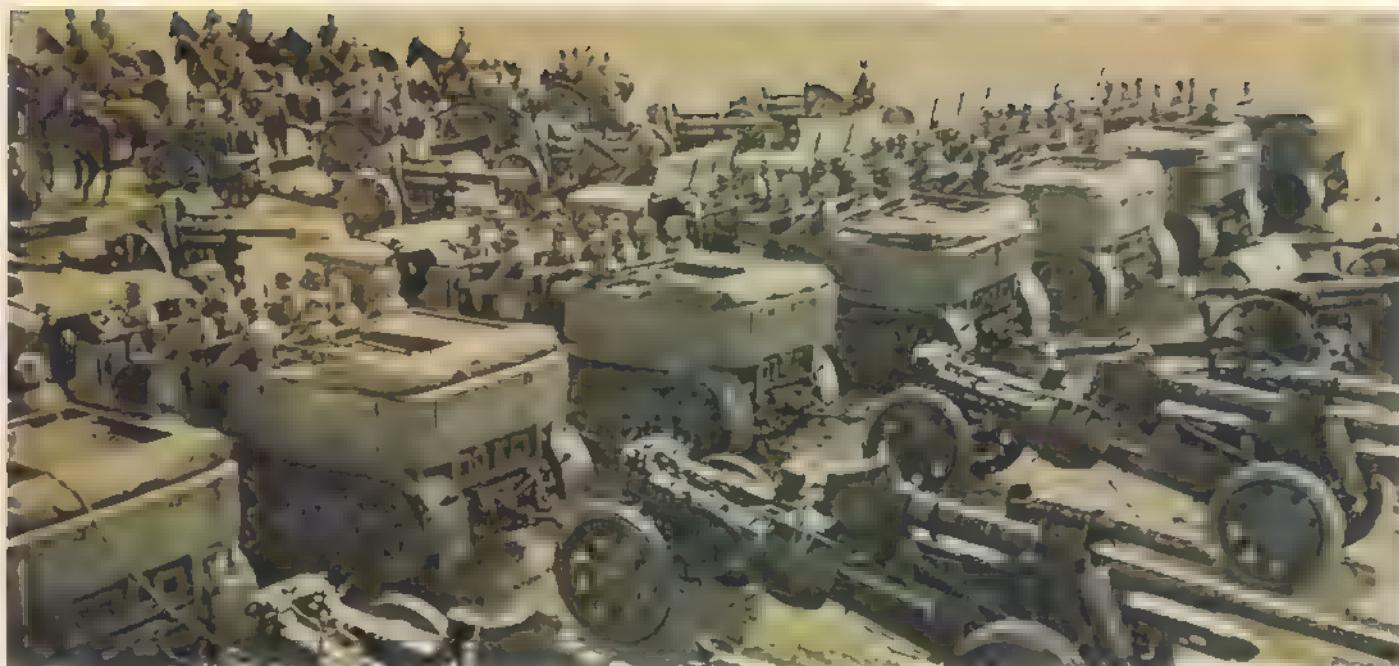
Brauchitsch and Col. Gen. Franz Halder. Hitler often overruled his generals — with such effect that early in the war they considered him a military genius.



Robert Hunt Library/Bundesarchiv

Russian prisoners — probably partisans, who were active in the area — hanged by the Germans in the Caucasus in 1943. The sign says 'Photography forbidden', but news of

such atrocities got out — and incensed the Allied peoples. Hitler's failure to conciliate the peoples of conquered territories was probably his greatest blunder.



The half-tracks and 150mm field guns at this pre-war German artillery school parade were modern for their time; the horse transport in the background was not. Arming

'in breadth' rather than 'in depth', Hitler saw that his front-line troops had everything of the best, but his 'back-up' equipment proved to be much inferior.

Kremlin gleaming in the setting sun. They got no further. Three days later the Russians began a counter-offensive. The *blitzkrieg* had failed. Hitler himself said to Jodl, his chief military adviser: 'Victory cannot be achieved in this war.' It was not that Hitler had made strategic mistakes. It was that the Russians, to everyone's surprise including their own, had proved too strong for him.

Almost simultaneously — on 7 December 1941 — the Japanese attacked the American fleet at Pearl Harbor. Four days later Hitler supported his ally and declared war on the United States. This was undoubtedly a blunder of the first order. Without Hitler's declaration of war, President Roosevelt would have had difficulty in giving the European war first priority and might have been left fighting only Japan.

Hitler apparently did not grasp this. He seems to have thought that the US would be locked in conflict with Japan and so unable to intervene in Europe. His declaration of war on the US was simply to ensure that Japan would remain in the war and not contemplate a compromise peace.

However misguided, though, this decision did not determine Germany's fate. The German armies were defeated by the Russians. The British and Americans intervened effectively in Europe only when Germany had virtually lost the war; at most, the western powers' intervention brought final victory more quickly. Invasion of Russia was the only way in which she could lose it. Hitler recognized this and, being a gambler, he gambled that he would win.

In December 1941, Hitler took direct control of the German armies. He became commander-in-chief on the Eastern Front, as well as supreme commander of all German forces. It was his decision that the German forces should stand where they were and not retreat, and it worked. The Russian counter-offensive petered out. By 1942, Hitler could 'hope again'.

The Stalingrad offensive was his last fling for victory. The motive for it was the oil of the Caucasus which would enable Germany to keep going, and Hitler also pursued the fantasy that from Stalingrad the Russian front might yet be en-

circled. German strength was running out. Hitler took a great risk when he left the northern flank of the advance to Stalingrad weakly guarded, and he paid the penalty. In November the Russians broke through here, and the German armies at Stalingrad were cut off. His later refusal to withdraw from Stalingrad has also been counted against Hitler. The best military opinion, it seems, does not endorse this criticism. By refusing to withdraw from Stalingrad, Hitler enabled the German armies to regroup and to make a new defensive front that stemmed the Russian advance.

After Stalingrad, and even more after the great Russian tank victory at Kursk in July 1943, the aim of Hitler's strategy changed. He no longer aimed to win the war and establish Germany as a world power. He aimed to keep the war going until his opponents either wearied or quarrelled among themselves and agreed to a negotiated peace. His sole remedy for every situation was to order: No retreat or withdrawal. Clearly he sometimes blundered and overdid this. For instance, he insisted on sending fresh forces to Tunis when it was already lost and thus threw away a hundred thousand German soldiers to no purpose. But often his obstinacy proved successful.

The German generals plotted secretly against him. They would have liked to withdraw and regroup, imagining that after regrouping they could turn defeat into victory. But Hitler never wavered from the conviction that the war was lost unless the anti-German coalition broke up. And he was not all that far wrong in hoping for this. President Roosevelt died in April 1945, when the war was virtually over. Anti-Soviet forces took control in the US, and quarrelled with Soviet Russia immediately after the war ended. Had Roosevelt died earlier, these same anti-Soviet politicians might have split the alliance.

Hitler counted on new weapons to help stave off defeat. In this, he almost succeeded. German war production steadily increased until the autumn of 1944. The V1 rockets caused great damage and might have made London uninhabitable if there had been more of them. The new *snorkel*

submarine was coming into production in 1944, and the Allies had no answer to it. Germany was the only country that had developed jet fighters, which might in time have recovered mastery of the air. The Allied peoples saw victory as certain by the end of 1944. Allied scientists behind the scenes recognized that it was touch-and-go.

Hitler's decisive blunder was in the field of economics and politics, rather than in strategy. The Nazi system of administration was incompetent, and Hitler added to this incompetence by pursuing policies that had nothing to do with the war. This was outstandingly true of 'the final solution' — the extermination of the Jews. When all Germany's resources were needed for the war, the Nazis at Hitler's order diverted hundreds of trains for the transport of Jews to the gas chambers, and used building materials for the concentration camps instead of for factories.

Could have been Europe's champion

On a wider scale, Hitler exploited the conquered peoples and countries of Europe by brute force and so turned them against him. If he had operated in a more conciliatory way, he might have become the champion of a united Europe against the Communist danger. As it was, Hitler drove the peoples of Europe into welcoming even the Russians as liberators.

The Eastern Front remained Hitler's main preoccupation until the end of the war. But he also interfered in the west, first when US and British forces prepared to invade northern France and again when they actually did. It was on Hitler's order that half the German armies in France were kept in the Pas de Calais — and only half in Normandy, where the Allies actually landed. Ironically, Hitler had a hunch that the Allies would land in Normandy, but then hesitated to go against military opinion. His insistence on prolonging the battle in Normandy and even attempting an offensive towards Avranches was also mistaken obstinacy.

Yet Hitler showed strategic inspiration of a high order even in the last months of the war. The German winter offensive of December 1944 in the Ardennes was as unexpected as that of May 1940 had been and threw out all the Anglo-American plans. But this time the Germans had not the strength to exploit their success, and it proved barren. Much the same can be said of the fighting in 1945. No strategy could turn German defeat into victory. The Germans were remorselessly ground down by superior strength. Hitler committed suicide. For him there was no other way out.

Hitler had grave faults as a military commander. He interfered too much in details, especially towards the end of the war. He ignored information that clashed with his own opinions or wishes. But his greatest mistake as a strategist was to often accept the advice of his generals instead of imposing his own ideas. He had graver faults as a political strategist. He did not know how to compromise or conciliate, and he never attempted to negotiate any agreement except one of complete surrender.

Nevertheless he almost accomplished the impossible. His ingenuity gave Germany domination over the entire continent of Europe at practically no cost. It looked for a time as though he would conquer Russia also.

Hitler did not fail because of his blunders. It was his enemies who made the blunders. Despite this they proved, in the end, too strong for him. The God of War does not like cleverness. He likes the big battalions. And that is why Hitler lost World War II.



Hitler addresses a mass rally of Hitler Youth at Nuremberg in 1934, a year after he came to power. Hearing his ranting speeches, many Western leaders doubted his sanity and thought his support would fall away once he led Germany into a serious war. They were wrong.



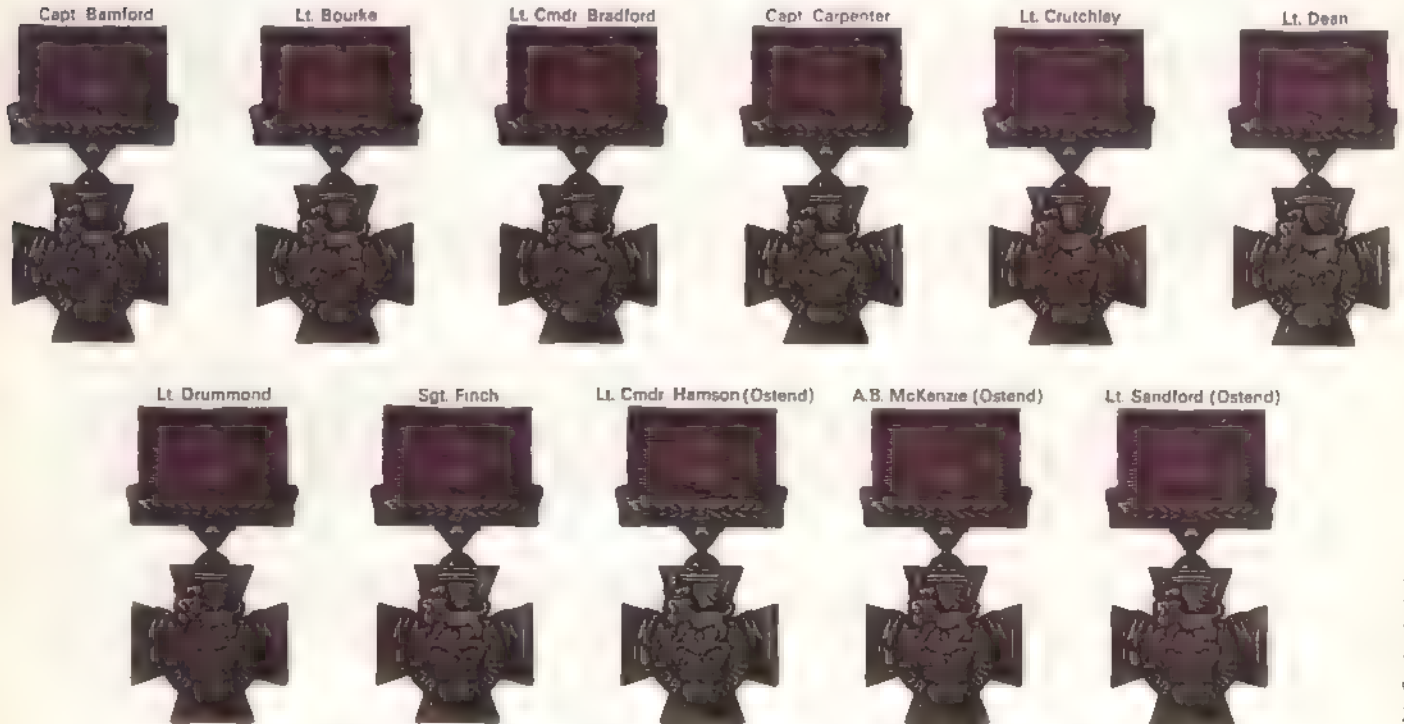
British troops greet a Russian girl soldier as the Soviet and Anglo-American armies meet on the Elbe in 1945. After his failure on the Eastern Front, Hitler's one hope was that the successful Allies would quarrel and separate; he no longer had faith in a German victory.

Robert Hunt Library, Bundesarchiv

Robert Hunt Library, Imperial War Museum

ZEEBRUGGE

One swift raid, the British thought, would easily cripple this U-boat base. And so began a night of reckless heroism



Zeebrugge was a thorn in the side of the Allied shipping. British maritime trade in the English Channel was being attacked by U-boats and destroyers based in the Belgian ports of Zeebrugge and Ostend, which had been occupied by the Germany army as it swept through Belgium in 1914. The German plan to defeat Britain in World War I was by action against her sea trade, vital for the survival of the British Isles in wartime. Heavily outnumbered in surface ships in 1914, the German navy had to rely on submarines. The main German bases, the Jade and Ems estuaries, lay too far to the north — and too close to the British Grand Fleet stationed at Scapa Flow in the Orkneys. But the German occupation of Belgium in the summer of 1914 provided harbors at Ostend and Zeebrugge — only 70 miles from the south-east coast of England.

Destroyers and U-boats, from the deep-water basin at Bruges, some six miles up the canal, would make lightning sorties out to attack shipping. U-boats could slip out to the North Sea, or through the English Channel into the Atlantic. Destroyers were able to dash into the Dover Straits in raids such as that in October 1916, when 20 returned safely after sinking a number of Allied warships and damaging others. German destroyers shelled Broadstairs, Margate and Ramsgate on the Kent coast, and threatened Dover and Folkestone, from which troopships sailed to France.

Two naval forces defended the coast of south east England, the Harwich force patrolling the North Sea, and the Dover Patrol, responsible for the defense of shipping in the English Channel. The Dover Patrol was commanded by Admiral R. Bacon. His forces were reinforced by fast patrol vessels, light aircraft, searchlights and mines. A system of nets and buoys, searchlights, naval patrols and minefields, covered by the description 'Dover Barrage', was devised to prevent German naval raiders slipping through the Dover Straits. But by late 1917 it became obvious that Bacon's measures were not effective.

No one was more conscious of this than Roger Keyes, at 45 Britain's youngest rear-admiral, already with 32 years' Navy service behind him. Keyes was a fighting sailor: he had fretted under Admiral de Robeck's command in the Gallipoli-Dardanelles campaign in April 1915, and was loud in his disapproval of the cautious methods of men such as Jellicoe and Bacon. Keyes, Commodore of the Submarine Service in 1912-14, was given command of a battleship division, with *Centurion* as flagship. Then, in late 1917, he was appointed head of the Naval Plans Division and at once began to press the Deputy First Sea Lord, Admiral Sir Rosslyn Wemyss, with plans for improving the Dover Barrage — and for a direct attack on Zeebrugge and Ostend.

Bacon had already put forward a plan for such a raid, but

could not get official blessing. Then Wemyss, now First Sea Lord, sent for Keyes. 'You have talked a hell of a lot about what ought to be done at Dover,' said Wemyss, 'Now go down there and do it yourself!' Keyes, promoted to vice-admiral, took over on 1 January 1918.

... His first action was to collect his senior officers and deliver a collective 'rocket' for inefficiency. Enemy submarines were passing unharmed through the Dover Straits on the surface; Keyes estimated their number at 253 U-boats in the past ten months. Immediately, the Dover Barrage was strengthened by more mines, more searchlights — and

On 24 February 1918, Keyes submitted his detailed plan and the Admiralty approved. The first 'possible' date for the action was 12 March, but Keyes, realizing that he could not have men specially trained and equipment prepared in such a short time, set a deadline of 9 April. Zeebrugge was to be the main target, and Keyes intended to lead the attack in person.

The harbor of Zeebrugge lay at the mouth of a canal running in a near-straight line to Bruges. The canal, tidal at its seaward end, was navigable at high water by the largest destroyers and submarines. Its entrance lay about 880 yards



The blockships after the action. Thetis lies in shoal water, her propellers entangled in the net barrage, and scuttled before she could reach the canal. Intrepid, bows

down, lies inside the canal entrance with Iphigenia astern. A dredger is already at work clearing the channel by Thetis. The Mole stretches across the background.

constant patrols. Keyes drove his captains ruthlessly. Within a few weeks, Naval Intelligence reported a considerable drop in the number of U-boats passing through the Straits. Next, Keyes determined to strike at their bases.

At the Admiralty, Admiral of the Fleet Sir John Jellicoe had come to the same conclusion — but adopted a different, and in the event more tragic strategy. The Commander-in-Chief of the British armies in France, Douglas Haig, had insisted in mid-1917 that his troops were ready for a fresh offensive. He won Jellicoe's support by promising the capture of Bruges and its outlets. So, in autumn 1917, Haig threw his men into the muddy, bloody hell officially called the Third Battle of Ypres. (The men who fought there called it 'Passchendaele'.) British casualties amounted to 400,000, German losses to 250,000 — and Bruges and the canal exits were still in German hands.

The Admiralty was now willing to listen to Keyes' plan: a surprise attack from the sea to block the canal exits from Bruges at Zeebrugge, and Ostend. Keyes estimated that 40 or 50 submarines and many destroyers would be trapped by a successful blocking operation.

inland: a massive lock protected by two small stone piers, while the lock-gates could be withdrawn into bomb-proof shelters.

Along the 20-mile stretch of coast between Zeebrugge and Ostend, the Germans had sited 56 coastal and anti-aircraft batteries, totalling 225 guns and several batteries of medium and heavy artillery. At least 40 guns, from 11in to 3.5in, were sited in the Zeebrugge area alone. All these batteries were linked to an efficient signals network. The lock-gates themselves were guarded by fortified machine-gun and infantry emplacements: any demolition party put ashore there would have small chance of success — or survival.

But the shore batteries were not the main obstacle. Far more threatening was the barrier of the Zeebrugge 'Mole', the largest of its kind in the world. This stone, steel and granite pier had originally been constructed to shelter the harbor, prevent the blocking of the canal approach by silting sand, and provide a quay against which large vessels could moor at any state of the tide. The Germans had turned it into a fortress.

From its foot on the coast about 880 yards west of the canal entrance, the Mole curved north and east in a sickle shape. From the shore, a stone pier wide enough to carry a highway, a footway and a double-track railway extended for about 300 yards. This was linked to the Mole proper by a steel viaduct on iron piles carrying the railway and footway a further 300 yards. The open-work viaduct, which might seem an obvious weak spot, allowed free movement to the tides thus preventing excessive silting within the harbor.

The Mole was protected on the seaward side by a wall 20ft high and 12ft thick, surmounted by a catwalk 9ft wide. The catwalk, with iron ladders or stone steps leading down to the Mole at intervals, was connected to the viaduct by a flight of stone steps and was guarded to seaward by a 4ft parapet. Even at high tide the top of the parapet was 30ft above sea-level. In addition to the large railway station and warehouses on the Mole, the Germans had constructed a fortified zone, bristling with barbed-wire and machine-gun nests. A barracks at the end housed the garrison.

The north-east extension of the Mole consisted of a narrow stone pier, over 300 yards long and 15 yards wide with a lighthouse at its tip. Thus, the total length of the Mole was a little over one and a half miles.

There were big guns on the Mole: three 4.1in and three 3.5in on the extension, with a 360° arc of fire; two anti-aircraft guns in the fortified zone; and three 5.9in at the Mole's foot (where there was also a seaplane base). The garrison was about 1,000 well-trained troops with detailed orders to cover any emergency. On any night, two or more destroyers might be moored along the inner edge of the Mole, their crews ready to assist the garrison.

An anti-submarine boom of barges and buoys supporting heavy nets ran across the harbor from the lighthouse to the canal entrance. This too might hinder the approach of Keyes' ships, for his whole plan hinged on being able to run blockships in to be sunk at the lock-gates, thus 'putting a cork in the bottle'.

Three ancient cruisers

As blockships Keyes had chosen three ancient cruisers dating from 1890-91: the *Intrepid*, *Iphigenia* and *Thetis*. Each vessel was ballasted with 1,500 tons of concrete and fitted with scuttling-charges. All were fitted with duplicate controls protected by bullet-proof plating and mats, for their run-in would be made under heavy fire. The engine-rooms were strengthened with walls of cement and rubble. Although they would make their final approach with 'skeleton' crews, these were provided with plenty of guns and ammunition.

Originally, Keyes had planned to send a fourth blockship to Ostend: the second-class cruiser *Vindictive*. But he soon decided that *Vindictive* had a more important role to play — as the spear-head of the small armada that would force the blockships through at Zeebrugge. He was aware of the difficulty of putting boarding-parties on the towering Mole to destroy the German batteries that might otherwise sink the blockships before they could reach their target.

Ideally, he needed a ship with high freeboard and shallow draught, such as a passenger liner. Lacking such a craft, he chose *Vindictive*. Though built in 1897, she was known to be strong and easy to handle. Since her draught of 19ft would put her at risk if minefields were encountered, Keyes chose the Mersey ferryboats *Iris* and *Daffodil*, sturdy, shallow draught craft, to sail as *Vindictive's* consorts and carry extra boarding-parties.



R: Bert Hunt Library / Imprensa Wp: Museum

Back in Dover, sailors from the Eugene on the shattered deck of Vindictive, dismantling one of Wing Cdr. Brock's two 'novelties' — flame-throwers installed to incinerate the German gunners on the Mole. Both were damaged so badly during the action that they failed to ignite.

The landing force was to consist of 200 naval volunteers, and 700 men of the 4th Battalion, Royal Marines. They were not told, as they toiled through several weeks of close-combat training and demolition work, what the objective was. Although Keyes had a full-scale model of the Mole built for training purposes, he carefully leaked the information that it represented 'a defended position near Calais'.

Vindictive was given special equipment. To help the attacking force reach the Mole's top, a new upper-deck was rigged on her port side with broad ramps leading up to it from starboard. At high tide it was estimated that this false deck would be only about 4ft from the Mole's summit. Eighteen 'brows' — gangways — were fitted along the edge of the deck. These would be the paths along which the boarders would storm the Mole's top. Three howitzers, one 11in and two 7.5in, were installed to supplement *Vindictive's* main armament of six 6in guns for their duel with the Mole batteries. Batteries of pom-poms (small quickfirers, using 1lb shells) and Lewis machine-guns were sited along the cruiser's upperworks, along with light mortars.

The main 'novelty' in *Vindictive's* armament was the presence of two large flame-throwers. They were designed by a man who was to play a major part in the raid. He was Wing Commander F. A. Brock, RAF, son of the founder of the famous English fireworks company. Brock had originally been seconded to Keyes to improve the illuminations of the Dover Barrage. Brock also supplied the most important single factor for the success of the Zeebrugge raid: a truly efficient smokescreen. For the manufacture of this 'fog', Brock persuaded the British government to supply vast quantities of a chemical used to make saxin, a sugar-



One of the reasons for the Zeebrugge and Ostend actions. The German ocean-going U-boat U29 heads out from Ostend to attack Allied shipping in March 1915. This port and Zeebrugge were only 75 miles from England, providing ideal bases from which to make hit-and-run raids

substitute. Perhaps the civilians would have drunk their bitter tea with fewer grumbles had they known where the 'sweetener' was really going.

All the ships at Zeebrugge were fitted with smoke producing gear, but it was fast coastal motor-boats which were to dash in ahead and blanket the Mole and harbor with smoke. The night had to be dark, and moonless. The blockships must reach their scuttling positions (only accessible during the three-hour period surrounding the high tide) at a time which would allow their escorts to be out of range of the coast by daybreak. Only five nights in every lunar month satisfied those conditions.

Bad weather could threaten the whole plan. The raiders would have to approach through treacherous shoal water without navigation lights. A cross-current of up to four knots would hinder an approach based on 'dead-reckoning' navigation. Brock's 'fog' required a gentle breeze *blowing towards the shore*. Since the raiding force would have a maximum speed of only about ten knots, about half of its 75-mile voyage would have to be made in daylight, with the obvious risk of its presence and course being reported by German spotter-aircraft or U-boats.

A final problem: once Keyes got his assault party ashore, how could he prevent the enemy garrison on the Mole from being reinforced from land? Lieutenant Commander Francis Sandord, a young naval officer who had won Keyes' approval at the Dardanelles, found the answer. Two obsolescent submarines, C1 and C3, were to be filled with explosives and towed to Zeebrugge. Then they would ram the viaduct, wedging themselves between its iron piles. The commander would light a delayed-action fuse, and the men would be taken off by motor-launch. This action was

designed to prevent the reinforcement of the Mole garrison.

By the end of March, the ships and men who were to sail to Zeebrugge on 9 April were being held in isolation at a remote anchorage in the Thames estuary. The Royal Marines were not told of their true destination until they were at sea. The Marines were not volunteers: Keyes reasoned that they were soldiers being asked to run no greater risk than troops in France ran every day.

On 7 April, the Admiral arrived to address his ships' crews. He gave them full details of their task, making no secret of the fact that most of them might be killed, wounded or prisoners-of-war. Any man, said Keyes, who felt that family or other responsibilities demanded it could now step down, without questions or recriminations. His answer was a great roar of cheers. Not one man withdrew.

On 9 April, weather conditions were unfavorable, and again on the 10th. But on 11 April, with near-perfect weather, Keyes gave the order to set out.

About 140 vessels, ranging from cruisers to motor-launches, assembled off the Goodwin Sands in the early evening. By 1930 they were steaming north. Captain H. P. Douglas, another of Keyes' Dardanelles men, had surveyed the route in advance and had laid light-buoys and smoke-floats as guides at 20-mile intervals. At the last of these markers, 16 miles northwest of Zeebrugge, the raiding forces for Ostend and Zeebrugge were to separate

An agonizing decision

The final buoy was reached — and then the wind changed! The smokescreen would be useless. Keyes, knowing that some senior officers believed his plan was rash, had an agonizing decision to make. It would be so easy to go on. Then he proved that he was truly a brave man — by calling off the raid.

All the vessels returned to their anchorage. And, next day, conditions seemed once more ideal. The armada sailed again — and turned back again when a high sea got up to threaten the motor-boats and launches. The 'possible' period for an April attack was now past.

Keyes' worst fears were realized: the Admiralty decided to shelve the whole plan. Keyes turned the full force of his blazing personality upon their Lordships. He pointed to the plight of the armies in France reeling under the Germans' final great attack as Haig issued his celebrated 'backs to the wall . . . fight on to the end' order. A successful raid now might do miracles in raising morale. Besides there was a full moon on 22 April, the tides would be right and the weather might be favorable. The Admiralty was persuaded. Keyes issued orders for the raid to be made on the night of 22-23 April.

On the afternoon of 22 April, Keyes' wife walked with him to Dover harbor, where the destroyer *Warwick* waited to take him to the rendezvous. (Keyes had originally intended to lead the attack in *Vindictive*, but had been persuaded that it was vital for him to be in a position from where he could exert overall command.)

Eva Keyes reminded her husband that tomorrow was St. George's Day. Keyes took the words to heart: as soon as his strike-force was under way, around 1700, he hoisted the signal: 'St. George for England'. Captain A. F. B. Carpenter of *Vindictive* signalled back: 'May we give the dragon's tail a damn good twist!'

The force sailed in three columns: the center led by *Vindictive*, towing *Iris* and *Daffodil*; the starboard led by *Warwick*, with other destroyers towing submarines C1 and



The 40ft gap torn in the viaduct linking the Zeebrugge Mole to the coast. To prevent reinforcements for the Mole, the British submarine C3 was blown up after ramming

the iron girders of the viaduct, killing many of the German defenders. (Inset) the blockships still in the canal-mouth after the end of World War I.

C3; there was a destroyer screen to port. Some 24 CMBs and 60 motor-launches sailed between the columns: the motor-boats were to lay the smoke-screens, the launches to attack any enemy destroyers that might be alongside the Mole and to act as rescue-craft for the crews of the blockships and submarines. While daylight lasted, aircraft patrolled overhead and in advance.

Night came, and with it a bright moon that seemed to threaten disaster. One of Keyes' officers suggested: 'They'll never think we'd be such fools as to try to pull off a raid on a night like this!' But of greater comfort was a rising mist, while rain-clouds obscured the moon and produced a persistent drizzle.

'Stowaway' stokers

At 2200 the final marker-buoy was reached. Now, Keyes' men showed just how much they trusted him. The blockships carried extra stokers, who should have disembarked at this point to return to Dover. Forty-six of them hid themselves in their ships rather than miss the action.

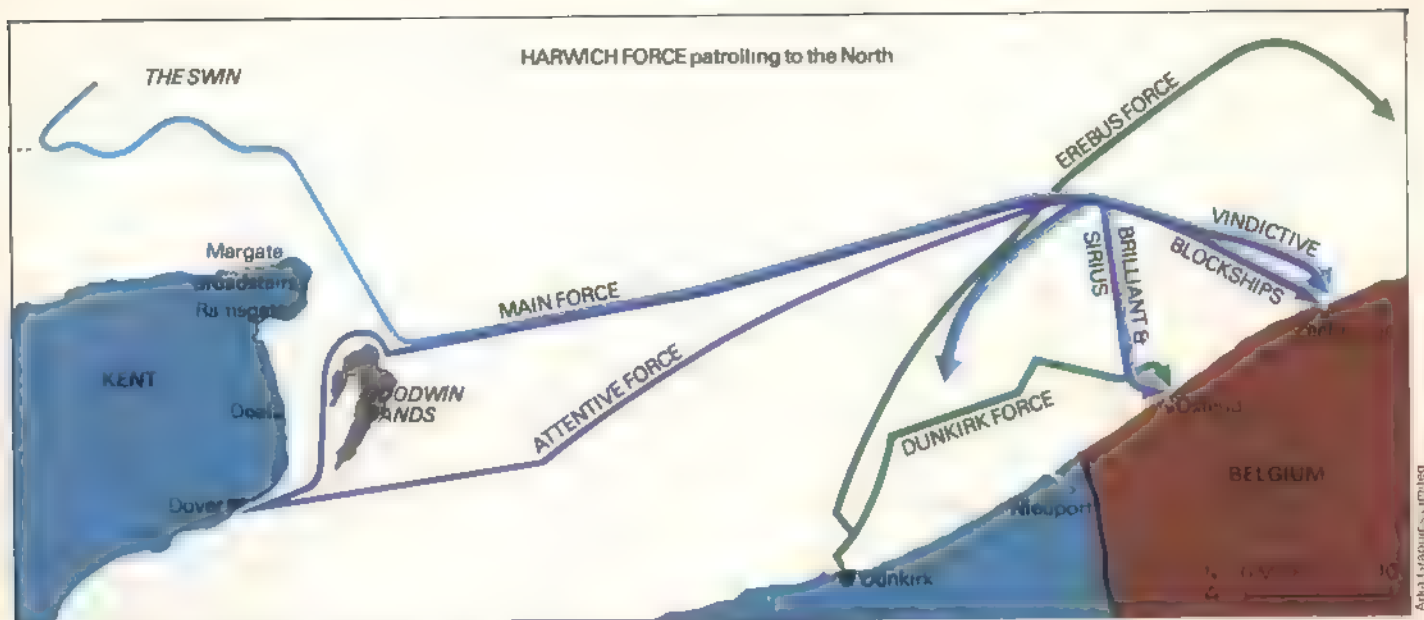
For a week beforehand, Zeebrugge had been under fire from two monitors (shallow-draught vessels with one or two heavy guns, specially designed for coastal bombardment) far out to sea. The monitors, *Erebus* and *Terror*, were still firing as Keyes' force headed in, but an air-raid had to be cancelled because of the dirty weather. As *Vindictive* approached the Mole, CMBs dashed ahead to lay a thick smokescreen. Everything was going according to plan.

Then, at midnight, the wind changed. The German gunners, alerted by the sound of the CMBs' engines, were waiting. As the wind began to blow strongly off-shore, the smokescreen and mist were torn aside. The enemy manning

the guns on the Mole extension saw *Vindictive* bearing down on them, not 300 yards away. As searchlights and star-shells changed night to day a storm of shells hit the old cruiser at point-blank range.

The boarding-parties on *Vindictive's* decks were supposed to be under cover, but their officers — Colonel B. H. Elliot and Major Cordnor of the Royal Marines, Captain H. C. Halahan and Commander E. Harrington Edwards of the naval party — were in exposed positions, intent on seeing that *Vindictive* came alongside the Mole at the planned position. It took three minutes for the ship to reach the Mole, but Elliot, Cordnor and Halahan were killed, and Edwards gravely wounded. Men rushing forward to help him were hit by machine-gun fire and shrapnel. After the action, an officer from *Vindictive* described how, while alongside the Mole, he stumbled over a platoon of Marines who appeared to be cowering beneath the ramp leading to starboard. Then he realized that they were all dead, killed by a single machine-gun burst while at action stations.

Sixteen of the 18 'brows', along which *Vindictive's* boarders were to have stormed ashore, were destroyed during the approach. The surviving Marines prepared to go in across the two that remained. Worse still, under such heavy fire, *Vindictive* had not been able to take her planned position alongside the flat-topped barracks, where she could have put her men ashore within the fortified zone. Instead, she was 300 yards farther along the Mole, and heaving so violently that it was impossible to moor her. Showing great ingenuity, Lieutenant Harold Campbell of *Daffodil* running his engines under pressure their designers had never planned for, rammed his bow against *Vindictive's*, holding her against the wall. *Iris* was positioned just ahead.



The British approach plan for the sea-borne night attacks on the Belgian ports of Zeebrugge and Ostend.

The heavy swell made it impossible for the men aboard *Iris* to fix their scaling-ladders to the Mole parapet. Two officers of the naval boarding-party volunteered to scale the wall with lines and grapnels, even though German machine-guns were raking the area. Lieutenant Claude Hawkins was shot dead the moment his head appeared above the parapet. Lieutenant Commander George Bradford, following him, managed to put a grapnel in position before being cut down. His body fell between *Iris* and the Mole. Neither he, nor Petty Officer Hallihan, who dived in to attempt to save him, were ever seen again.

Bradford was awarded a posthumous Victoria Cross. But his sacrifice was in vain; *Iris* had to fall back alongside *Vindictive* in an attempt to put her men ashore across the cruiser's deck. Some men had now struggled ashore from *Vindictive* to engage the Germans fiercely in order to take their attention from the oncoming blockships. In the next few minutes, five more Victoria Crosses were won.

Lieutenant Commander Arthur Harrison, RN, who now commanded the naval stormers in *Vindictive*, led a wild charge which took him (with a broken jaw suffered on the run-in) towards the tip of the Mole. Every man of his party was either killed or wounded. Harrison's VC, was posthumous, but Able-Seaman Albert McKenzie, badly wounded, charged at his commander's side firing his machine-gun from the hip and survived to receive his Cross.

Alongside the Mole, *Vindictive's* hull and lower deck were shielded from the German fire. Not so her upperworks. Sergeant Norman Finch, Royal Marine Artillery, was second-in-command of the pom-poms and Lewis guns in *Vindictive's* foretop. One by one his comrades fell. Soon only Finch himself was left, bleeding but, reeling from one gun to another, fighting from his exposed position to give covering-fire to the landing parties. He lived to receive his VC.

Another Marine to win the VC, was Captain Edward Bamford, DSC, Royal Marine Light Infantry. He too stormed ashore at the head of his few remaining men from the devastated *Vindictive*, hurling himself, bayonet fixed, at the German barbed-wire and concrete entrenchments. He sur-

vived the action. The fifth VC went, by unanimous vote of the officers of all three ships at the Mole, to Capt. Carpenter of *Vindictive*.

But if the blockships were to reach their goal another action must be successful; the viaduct must be damaged or destroyed in order to keep German reinforcements off the Mole. The two old submarines — *C1*, commanded by Lieutenant A. C. Newbold, and *C3* by Lieutenant Richard Sandford — crept into the harbor shadowed by a picket-boat commanded by Sandford's elder brother Francis. Keyes, believing that the submarine crews had the most dangerous job of all, had limited each craft to two officers and four men.

A few minutes after midnight, *C3* was in sight of the viaduct — but both the motor launch and *C1* were nowhere to be seen. Sandford decided to push on alone. All six crewmen crowded on to *C3's* bridge as her clattering petrol engine drove her towards the target at a maximum speed of nine knots. It seemed impossible that the Germans would not spot them.

The Germans laughed . . .

Sure enough, a flare went up and searchlights lit up the submarine. But not a shot was fired before *C3* wedged herself securely under the viaduct, accompanied by peals of laughter from the Germans above. As he lit the 12-minute delayed-action fuse attached to the five tons of explosive packed into his vessel's bows, Richard Sandford realized that the Germans thought he had tried to sail under the viaduct and had become trapped. Then he and his men went over the side into the frail motor-skiff they carried hoping that the elder Sandford's motor-launch was close by.

The Germans stopped laughing and opened up on the skiff with rifles and machine-guns. Then the skiff's propeller was shot away. Sandford was wounded twice; Stoker Bindall was hit as he pulled on an oar, so was Petty Officer Harner. While the injured and bleeding Sandford urged them on, Lieutenant John Howell-Price took over the tiller and Leading Seamen Cleaver and Roxburgh labored to make headway against the tide. They were just far enough away to escape destruction when *C3* went up with a roar, taking the Germans with it and tearing a 40ft gap in the viaduct. Ten minutes later, the motor-launch found the skiff, half-full



Robert Hunt Library/Imperial War Museum

Protective mattresses still hanging from her foretop, conning tower and bridge, her funnels showing evidence of the German fire-power, *Vindictive* sits in Dover harbor on her

return from Zeebrugge. The housing for the flame-throwers, on the far side of the bridge, is pock-marked with bullet and shrapnel holes. Her masts were removed before the action.

of blood-tinged water, and took off its crew. Richard Sandford was the fourth and last member of the submarine service to win the VC in World War I.

Submarine *C1*, which had first snagged her towing hawser and then been fired upon by a British destroyer, saw the flash of *C3*'s explosion. Almost at once, Lieutenant Newbold heard the recall signal sounding from the Mole. Deciding the job was done, he turned away towards the open sea.

Gauntlet of the guns

Daffodil was sounding the 'recall' (*Vindictive*'s siren had been shot away) because the blockships had entered the harbor safely. Now it was up to them — and to the Naval volunteer reservists in their small escorting launches. *Thetis*, skippered by Commander Ralph Sneyd, led the way towards the canal entrance. At full speed, she ran the gauntlet of the Mole guns on her way to the gap in the net-barrage guarding the inner harbor. The landing-parties had done their work well, in spite of their heavy losses, for the firing from the Mole was inaccurate.

Thetis reached the barrier undamaged, but disaster struck again. Lieutenant Commander Young, RNVR, had volunteered to guide *Thetis* towards the lock-gates by calcium flares placed by his launch — but suddenly his craft was hit by three shells that turned her into a blazing, sinking wreck. Dying, Young lay on deck, refusing aid until his crew were safely away.

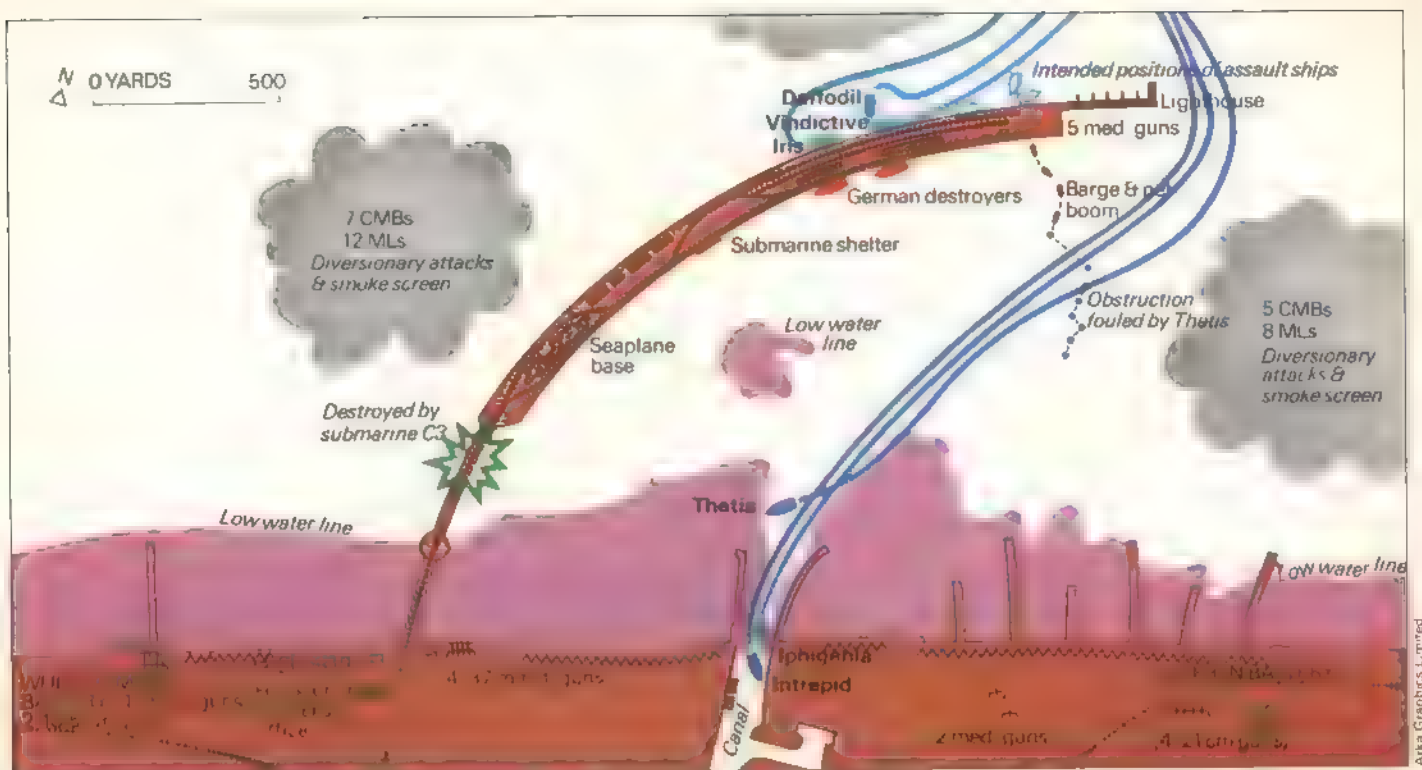
Sneyd continued to take *Thetis* in without a guide, but fewer than 200 yards from the dock gates, *Thetis*'s propellers fouled the net barrage. The German shore batteries now had a sitting target. *Thetis* was soon holed and heeling over, and

Sneyd ordered his crew into the one remaining life-boat. He signalled *Intrepid*, following close behind, to pass him and keep clear of the obstruction. Then he fired his scuttling-charges and *Thetis* went down in shoal-water, her upper-works remaining in sight to mark the channel for the ships following.

Intrepid, commanded by Lieutenant Stuart Bonham-Carter, passed through the nets and entered the canal mouth. Perhaps Bonham-Carter should have wedged his ship between the lock-gates, as *Thetis* had intended to do. But he followed his orders to the letter. *Intrepid* was scuttled across the narrowest part of the approach channel, and *Iphigenia*, close behind, 'was taken by Lieutenant E. W. Billyard-Leake into a position just astern and across the sinking *Intrepid*. This took time and the commander of the launch waiting to take *Iphigenia*'s crew off and with many *Intrepid* men on board, is said to have asked: 'Won't that fellow ever stop juggling with his engines?'

Only two launches were on hand to rescue the blockships. As the craft commanded by Lieutenant P. T. Dean, RNVR, at last headed for the harbor exit, she came under heavy fire. Since there were more than 100 men aboard (twice her official capacity) casualties were inevitable. The launch was near sinking when those aboard were rescued by Keyes himself, who had brought *Warwick* in on a final sweep for survivors. Dean was awarded the VC for his steadiness under fire: 'He handled his boat calmly as if in a practice maneuver,' read the official citation.

What of *Vindictive* and the ferry boats *Iris* and *Daffodil*? In spite of all his efforts, Commander Gibbs in *Iris* had not succeeded in putting any men ashore across *Vindictive* after 40 minutes alongside. But many men aboard were to



The Zeebrugge Mole and the canal entrance.

die now: immediately *Iris* left the shelter of the cruiser she became the prime target of the Mole guns. Gibbs and other officers were killed, and three shells falling among the men packed on the main deck reduced it to a shambles. Under cover of a CMB's smokescreen *Iris* reached open sea but at a cost of 77 dead and 105 wounded.

Twenty minutes later, *Vindictive* and *Daffodil* pulled away, the shattered remnants of their boarding-parties back aboard. They, too, were given smoke cover by CMBs and suffered few casualties to add to their already heavy losses.

Claim and counter-claim

The Zeebrugge raid had lasted for just one hour. The casualties are estimated as a little over 600 all ranks, of whom about 220 were killed, from a total force of about 1,300. Along with several CMBs and launches, the destroyer *North Star* was sunk probably by a torpedo fired from the Mole. Against this, the commander of a motor-launch claimed to have torpedoed an enemy destroyer tied up on the Mole's inner side. German reports tended to confirm his claim, though, strangely, neither the ships' identities nor the crews' actions have been described in official German reports.

Among the dead left on the Mole was Wing Cdr. Brock. He had gone ashore, officially against orders but with Keyes' unwilling consent, to try to locate a German 'sound-ranging' device, a primitive form of ASDIC (SONAR) said to be set there. He never returned. After reaching the homeward-bound rendezvous, Keyes ordered Commodore Boyle, with his force of destroyers and monitors, to take over the convoy. As *Warwick* raced for Dover, Keyes was already at work on his report to the Admiralty.

Immediate reaction to the Zeebrugge action was one of tremendous delight. Reference to early accounts of the raid in the press or in books published soon after World War I shows that it was hailed as a mighty feat of arms, and a

resounding strategical success. It was success but not in the way claimed at the time.

Within 24 hours of the Zeebrugge raid the Germans had dredged a channel round the sunken blockships; and within three weeks the canal was open. The raid on Ostend had been a complete failure.

Keyes was furious that the Zeebrugge raid was not followed up by an air attack on the ships temporarily sealed up in the Bruges basin. An attack, on 23 or 24 April, might have been most effective. Unfortunately, the Handley-Page bombers from Dover Patrol had been taken over by the recently formed Royal Air Force and had been moved away. (For the rest of his long and distinguished career, Keyes was to campaign for the formation of a Fleet Air Arm, with aircraft under the Navy's sole control. His service goal was achieved when he became the first Director of Combined Operations in World War II.)

Immediately after Zeebrugge, Keyes himself was awarded an immediate KCB. But he was far more anxious that the exploits of the men who had served him so bravely should be recognized and rewarded. In this he was not disappointed. The men who took part in the Zeebrugge raid and in the raids on Ostend won between them 11 Victoria Crosses, 21 DSOs, 29 DSCs, 16 Conspicuous Gallantry medals, 143 DSMs, and 283 mentions in despatches. The Marines received a special honor: King George V decreed that no other battalion of Royal Marines should ever be designated the 4th.

But the Zeebrugge raid's real success came through the tremendous lift it gave to both military and civilian morale. The British soldiers in France no longer grumbled about 'Navy slackers'. Instead, they stemmed the Germans' great thrust through St. Quentin and went on to launch a massive counter-attack. In Britain, where all news seemed to have become bad news, the dash and daring of Zeebrugge was responsible for a new spirit of hope and determination to win.

Richard O'Neill

TARAWA

Waist deep in water under a withering fire, the Marines struggled ashore. Could so tiny an island be worth this toll?



The shattered face of Betio a month after the assault. The long pier was a key point in the battle; from it, a withering fire exacted a heavy toll on Marines as they

approached the beaches on either side. The airstrip, clearly seen here, was an asset to the US forces in later raids on Japanese strongholds in the Marshalls.

Betio Island, on the central Pacific atoll of Tarawa, is an insignificant coral hump topped with coconut palms. It is two miles long, less than half a mile wide, and nowhere more than 9ft above sea level. Between the two world wars most people in Britain, which owned the place, had never heard of it. Today, you need a large-scale map to find it. But in 1943, Betio was a key link in the chain of island fortresses which guarded the perimeter of Japan's Pacific conquests — a chain which the Allies had to break, however bloodily.

Since their shattering sneak attack on Pearl Harbor on 7 December 1941 had seriously weakened the US Pacific Fleet, the Japanese had seized the Philippines, Wake, Guam, the Gilberts, Malaya, Burma and the Netherlands East Indies, and installed themselves in the Bismarck Archipelago-New Guinea-Solomons area. They were poised for their final onslaughts in New Guinea, and to attack Fiji, Samoa and New Caledonia.

Their strategy was simple: take all the island bases, isolate Australia — by cutting the US-Australia supply lines — and leave the Allies with no base in the south Pacific from which to mount a counter-offensive.

But by the end of 1942, with an enormous perimeter of bases to supply and defend, the Japanese had over-reached

themselves. Frustrated in their repeated attempts to take Port Moresby in New Guinea, and seriously weakened by the Allied victories in the Coral Sea and Bismarck Sea, with their fleet crippled by the costly failure of Midway, they were no longer capable of offensive action. The tide had turned.

In planning their counter-offensive, the Allies had two choices — to start from Australia and work northwards, 'rolling up' the occupying Japanese forces as they went, or to drive a wedge into the middle of the Japanese defensive arc. At a meeting in Casablanca, French Morocco, attended by President Roosevelt and Prime Minister Churchill and their chiefs of staff, the first plan was rejected as too slow and costly. Instead they chose the 'wedge' attack, which would isolate Japan from her enormous perimeter of bases and permit an attack directly against the Japanese mainland.

A drive through the Marshalls and Carolines, via the Gilberts and Nauru Island, was the obvious first step. On 20 July 1943, the US Joint Chiefs of Staff sent a signal to Fleet Admiral Chester W. Nimitz, Pacific Fleet, instructing him to 'organize and train the necessary forces to capture, occupy, defend and develop basis in the Gilbert group. . . .'

Tarawa atoll, in the Gilberts, was Nimitz's prime target.

Eighty miles north of the equator, it was the most strongly fortified base in the group, with an airfield constructed on its main island, Betio. Like other islands in the Japanese outer perimeter, it had a strengthened garrison and a tough, experienced commander. His instructions were to destroy the enemy at the shoreline. Should the enemy succeed in landing, his forces were to counter-attack to delay the invaders for as long as possible and exact the greatest possible punishment.

The Betio garrison numbered 4,836 men, including highly trained members of the 3rd Special Base Force and the

across — represented the most complete defensive system Japanese ingenuity could devise. It certainly was the most heavily defended atoll that would ever be invaded by Allied forces in the Pacific — a bastion which, Shibasaki boasted to his men, could not be taken by the Americans 'with a million men in a hundred years'.

Nimitz's main problem was one of logistics. In the south-west Pacific, General Douglas MacArthur had perfected island hopping and assault techniques which had necessitated the construction of massive bases where troops could be trained and, when wanted, could be conveyed into



Their .5 machine-guns at the ready, Marines of the second assault wave go in, their amtracs making heavy going in the strong wind outside the lagoon entrance. In the

background can be seen troops of the third wave of attackers. The lessons learned here led to the production of greatly-improved landing craft for future assaults.

Sasebo 7th Special Naval Landing Force commanded by Rear Admiral Keiji Shibasaki.

And the island they defended — 291 acres, shaped like an old-fashioned musket and surrounded by a coral reef that barely submerges at low tide — had been organized for all-round defense on the beaches.

A network of obstacles

Along the western and south western coasts were 7.7mm light machine-guns, sited in open emplacements to provide anti-aircraft fire. On the northern coast there were more 7.7s, and 13mm heavy machine-guns as well, positioned to give flanking fire along the front of the artificial barriers (in the shape of concrete tetrahedrons) placed all along the reef. The basic weapons were complemented by a network of obstacles including anti-tank ditches, beach barricades, log fences and concrete barriers, and double-apron barbed-wire fences in the water near the beach.

And backing them up were 18 naval guns, 27 field guns, six howitzers and seven tanks mounting 37mm guns. The weapons were mounted in strongly constructed emplacements of coconut logs, reinforced concrete and revetted sand.

In fact, what awaited the American Marines on this tiny island — only two miles long and fewer than 800 yards

action by beaching craft. Because of the short distances involved in island-hopping, the actual movements of troops had become what amounted to colossal ferryboat operations.

Gigantic mobile base

But for the Gilberts invasion, codenamed Operation Galvanic, there were no large land masses from which air support could be provided, no readily-available pools of labor, no dockyards, factories, airfields. Something new was needed — a gigantic mobile base which could provide the supply requirements for ships operating thousands of miles from US territory.

Next to Nimitz in the chain of command was Vice Admiral Raymond A. Spruance, Commander, Central Pacific Forces, under whom was the 5th Amphibious Force. For training and controlling troop elements for future amphibious landings in the Central Pacific, a separate command was created — the 5th Amphibious Corps, commanded by Major General Holland M. Smith, USMC. For the Gilberts invasion, Gen. Smith had at his disposal the 2nd Marine Division, commanded by Major General Julian C. Smith, USMC, and the 27th Infantry Division, commanded by Major General Ralph C. Smith.



Robert Hunt Library



Robert Hunt Library

Gen. Holland Smith's plan called for the landing of three battalion landing teams abreast on Red Beaches One, Two and Three on the north (lagoon) shore of Betio. The first three assault waves would be made up of amtracs, the fourth wave would be tanks boated in LCMs, the fifth would be LCVPs, each carrying about 35 troops.

The first troops to land would be, from east to west, the 2nd Battalion, 8th Marines; 2nd Battalion, 2nd Marines; and 3rd Battalion, 2nd Marines. The 1st Battalion, 2nd Marines, was to be held in regimental reserve. In division

◁ *Bristling with heavy machine-guns, LVT(2)s plough on. On the horizon, a Fletcher-class destroyer shells Betio to 'soften up' the defence ready for the landing. Delays in getting the landing craft ashore gave the Japanese time to recover from the preliminary bombardment and greet the Marines with a fierce fire; for later assault landings, bombardments were timed to the minute and were not lifted until the troops were within yards of the shore.*
◁ ▽ *With fixed bayonets, a platoon of Marines crouches behind the inadequate shelter of the seawall on beach Red Three, waiting for the signal to resume the attack.*
▽ *Two Marines dash forward with satchels of TNT to deal with a Japanese bunker. Others are already in position, ready to blast their way in. The backdrop of palm trees shredded by gunfire is evidence of the battle's ferocity.*

reserve, to be committed when and where the situation warranted, were the 1st and 3rd Battalions of the 8th Marines.

One problem, however, Admiral Nimitz could not solve: the probable depth of water above the fringing reef off the north coast of the island. The 2nd Marine Division was able to muster only 125 amphibious tractors. These LVTs (or 'amtracs') could operate through water and over land, and to them the reefs offered no great obstacle. But the remainder of the invasion force would have to be carried in standard LCVPs and when fully loaded, these drew at least 3ft 6in. Thus a minimum of 4ft of water was essential if the landing craft were to carry the assault troops from ship to shore. If not, the Marines would have to wade for several hundred yards under a hail of close-range fire.

On 13 November ships of the Northern Attack Force (Task Force 53) under Admiral R. K. Turner, which had come from Hawaii, rendezvoused with those of the Southern Attack Force (Task Force 52) under Rear Admiral Harry W. Hill, which had been based in New Zealand waters. The two forces set parallel courses for the Gilberts, Task Force 53 for Makin (a lightly-defended island) and Task Force 52 for Tarawa.

As the invasion force approached Tarawa in the early hours of 20 November, the weather was fair. The wind was E.S.E. at 13 knots. There would be relatively little surf on the beaches or inside the lagoon.



Robert Hurst & Brian S. Marine Corps

Adm. Hill, aboard his flagship *Maryland*, signalled the transports to approach the lagoon entrance, some six miles from the selected beaches. At 0335 the signal sounded for the landing craft to be launched. Ten transports carrying the amtracs lowered the landing craft into the water. Drivers took them to the sides of three other transports which had been prepared with heavy scrambling nets hanging down their sides for the Marines to clamber down into the amtracs.

Meanwhile, LCVPs boats had been disgorged from the LSTs, and the men of the second and third assault waves were loaded into them. Soon there were craft dotting the area, bobbing and circling. At a signal to the drivers, the scattered craft, full of silent troops, began to move to the assault wave assembly area northwest of the lagoon.

Not far away in the darkness lay the island. It could clearly be seen, small, flat and unimposing. Many of the unblooded enlisted men and junior officers felt optimism and relief at the sight of it. The low-lying strip of land certainly looked a pushover. 'Don't let it fool you,' murmured a Guadalcanal veteran, who knew the Japanese would fight to the death.

A star-shell suddenly burst over Betio. A few seconds later the flat crack of a gun came from the southern shore. It was a signal from Adm. Shibasaki, alerting his troops to the presence of the invasion force.

Shells began to fall

Three battleships, six cruisers and nine destroyers, the fire-support ships, were positioned in the open sea to the west of the island. Presently, the destroyer *Meade* curved sharply on the shore side of Adm. Hill's flagship *Maryland* and began to lay a smoke-screen. A few seconds later the battleship catapult-launched her Kingfisher spotting plane. Suddenly the Japanese batteries opened fire and shells began to fall among the ships. The splashes from near-misses were prodigious, proving that the enemy's coastal defense guns had not been knocked out by pre-invasion bombing of the past few days.

The first salvo fired by the Americans came from the battleship *Colorado* at 0507 to be followed at once by shells from the other support vessels. *Maryland's* 16in guns opened up on the southwestern point of Betio, her target the Japanese 8in coastal guns. The defenders countered with fire from all along the island. At 0542 the ships ceased firing, uncertain what damage they had caused in the pall of smoke and dust now lying over the island.

This was the moment for the carrier-based aircraft to take over — but they were nowhere in sight. Transports *Zeitin* and *Haywood*, still unloading troops into landing craft, were caught without covering fire, and shells from the shore-batteries began to splash around them. Adm. Hill immediately ordered them back out of range. Then he ordered the resumption of the naval bombardment, then cut it again as the planes appeared.

It was still dark as the Navy Hellcats swarmed in low across the sea for their first strafing attack. As soon as they had gone, dive-bombers peeled off and attacked the gun positions. Then, high up, came formations of Liberators which pattern-bombed the island from end to end. The attack lasted seven minutes, then the planes were gone.

A brief pause, then the pre-landing naval bombardment resumed. For two and a half hours the Marines in the approaching landing craft watched as the US warships threw more than 3,000 tons of projectiles at the tiny island,

pounding gun emplacements and installations, setting fire to log barricades, splintering palm trees, blasting craters and throwing up great piles of sand and coral. Across the island hung a haze of smoke and dust, broken by pillars of fire where ammunition and fuel supplies had been hit.

The first three, rather ragged waves of amtracs, carrying nearly 2,000 Marines, were on their way, heading for the lagoon entrance. Many of the Marines watched the bombardment with relief, believing that nothing could survive such a battering, that the Japanese defenders would be smashed by the time they reached the beaches.

In the first wave, there were 42 LVT(1)s, with eight empty tractors following as emergency support; 24 LVT(2)s in the second wave, and 21 in the third, followed by five replacements. The smaller warships came in with them. Minesweepers *Pursuit* and *Requisite*, screened by smoke, slipped into the lagoon and began marking the line of departure, boat lanes and dangerous shoals. Destroyers *Ringgold* and *Dashiell* came in behind them and took up positions from where they could cover the landing waves. They stood off and hammered at the Japanese shore batteries with their forward 5in guns.

Ringgold took two hits. Both were 'duds', but they still knocked out her port engine. A minute later a lucky shell found a Japanese ammunition dump and it went up in an enormous explosion, leaving the island in a grey-black shroud, broken by splashes of flame. *Pursuit* was now hove-to at the line of departure with her searchlight turned on the passage through the reef, guiding the assault waves.

But things were going wrong. A strong westerly wind and a heavy sea swell running with it was slowing down the landing craft, throwing the operation behind. Adm. Hill's spotter planes confirmed this from above, and he was forced to postpone H-hour — the actual landing — from 0830 to 0845, then to 0900.

Strafing mission was too early

His messages, however, failed to reach the fighter planes whose job it was to strafe the beaches just before the troops landed. They came in on their strafing mission far too early — at 0825 — and the naval gunfire had to be lifted until they were clear of the target. One landing craft, an LCPV, landed on the edge of the reef. From it scrambled Lieutenant William Hawkins, leading in half of his 2nd Scout-Sniper Platoon, whose orders were to fight their way to the defended pier on the north side of the island and provide a diversion while the first waves of assault troops stormed the beach heads.

But for most of the landing craft, the delayed H-hour was still too early by at least 15 minutes. Adm. Hill ordered the bombardment to cease by 0855, except for that from the two destroyers, feeling that it would endanger the assault troops as they moved towards the shore. Instead he ordered another air-strike. But the interval gave the Japanese time to recover from the naval bombardment, reinforce their beach positions, and direct accurate fire on the approaching assault force.

Now the first waves of amtracs were coming in, heading for the three beaches: Red One, which stretched 700 yards from the northwest tip of the island and halfway to the pier; Red Two, which covered the rest of the distance to the pier; and Red Three, which stretched 800 yards from the pier to a point opposite the end of the airstrip.

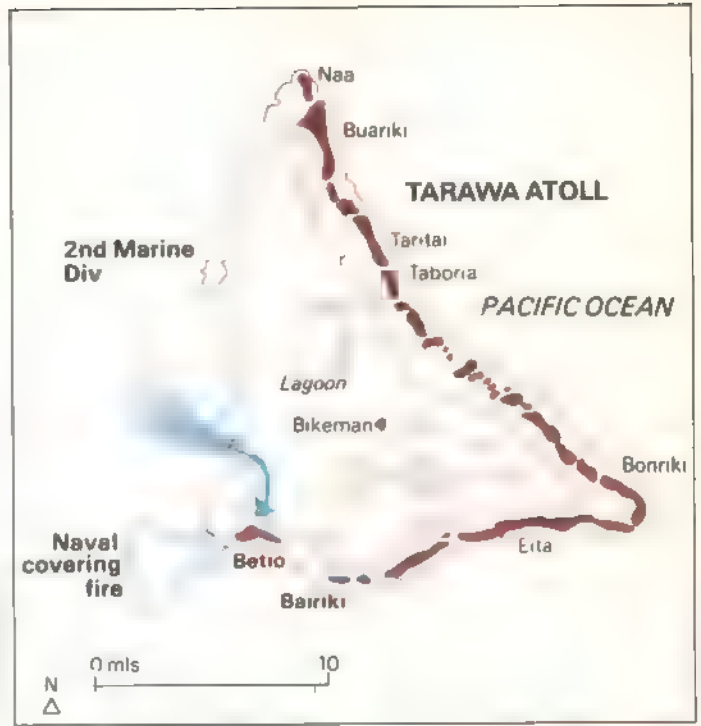
The long wooden pier dominated the landing area, and as the amtracs came into range they were met with blistering



The South Pacific, showing the Gilberts' vital position.

fire, causing many casualties. Drivers found the lagoon so cluttered with coral blocks that amtracs trying to reach the western side had to turn and come in on the east. Some of the amtracs had hit the apron of the reef and were crawling along it. Landing Team One was steering for Red One, where the reef apron was wide and the beachline formed a sharp re-entry angle into the lagoon.

The Japanese were waiting for them. At 100 yards range they opened up with coast defense guns, light and heavy machine-guns, and rifles. Bullets rattled into the tractors' sides and shells hit the water among the wallowing craft. The Marines returned the fire with rifles and machine-guns, but their shooting from bobbing 'platforms' had little effect. There was still 70 yards to go. The Japanese fire became intense, killing most of the amtrac drivers and knocking out many of the vehicles. A tractor took a hit and burst into flames. Men became human torches and jumped into the water. As one driver was hit and slumped over, a lieutenant took over and drove the vehicle. A few seconds later he also



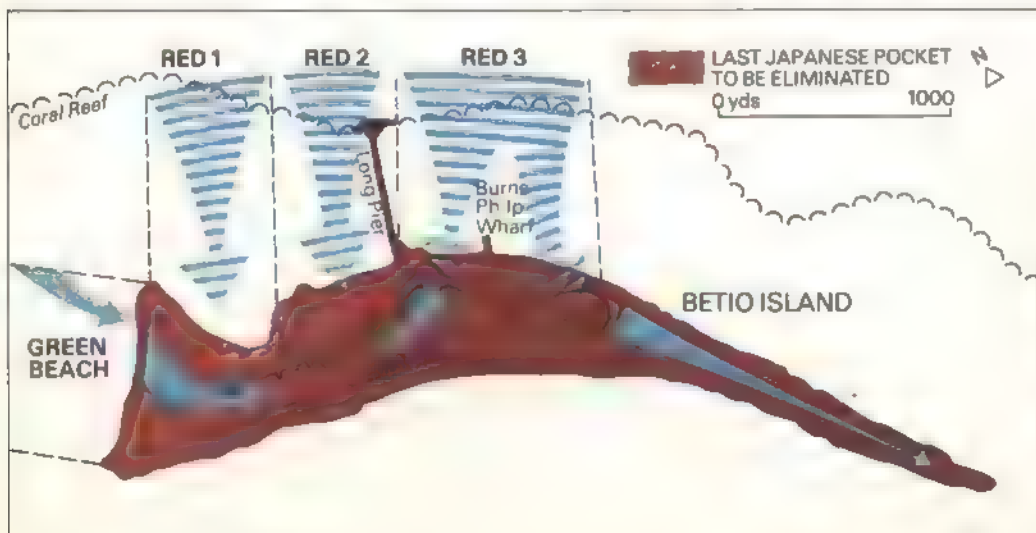
Betio. US objective on Tarawa atoll's coral reef.

was hit. Then a shell struck the boat. The Marines sprawled out into 2ft of water and were caught in withering fire from a pillbox.

Hawkins' men of the 2nd Scout-Sniper Platoon had fought their way to the pier. Six of them moved onto it with grenades, machine-guns and flame-throwers. They attacked any structure that might house an enemy. Two shacks hit by flame-throwers burst into flames. The pier itself caught fire. All the Japanese on the pier died.

Less than a quarter of Team One reached the beach. Under murderous fire they struggled to the cover of the sea wall and threw themselves down behind it, exhausted. Red Three's assault waves got ashore with comparative ease, but Red Two, in the center, came under concentrated fire from pillboxes and emplacements. Enfilading fire also came from strong-points on the left.

Lieutenant Colonel Herbert Amey, commander of Team Two, had his amtrac jammed in a tangle of barbed wire, and he and his men jumped into the water. A hail of machine-gun



Map of Betio, showing the position of the coral reef which proved such a deadly obstacle to the Marines' attack. The landings on Red Beach on 20 November were followed by support attacks across Green Beach in the next two days. The final clearance of the 'tip of the barrel' was made on 23 November, but the last pocket of enemy resistance was close to beach Red One, scene of the initial landing.



A US Marine in fighting order, his clothing designed to let him fight unhampered. Those landed on Tarawa carried a weapon, most often a Garand M1 .30 carbine, plus a minimum of personal gear — three units of K-rations, two water canteens, shaving kit, toothbrush and spoon.

fire caught them and Amey was killed with three of his men. The remainder managed to get to the shelter of a stranded boat.

Behind the first assault waves, the fourth wave, largely of 37mm guns and their crews in LCVs, reached the edge of the reef and stayed there, trapped by the tide. All they could do was sit it out until nightfall.

The fifth wave, LCMs, had to discharge their Sherman tanks in 3ft of water. Eleven tanks reached the beach after a hazardous journey over the reef. The rest were stopped by enemy fire. The tank battalion commander, Lieutenant Colonel Alexander Swenceski, was hit as he jumped into the water. Critically wounded, he managed to drag himself onto a heap of bodies before he fell unconscious.

By now the beach was an inferno. All along the shore and for some yards inland there was close, bitter and bloody fighting. Rifle fire and grenades had no effect against the well-entrenched enemy. The Marines used flame-throwers, and blocks of TNT in place of grenades, to overpower the enemy, bunker by bunker. All Lt. Hawkins' 34 snipers had



Dead Japanese sprawled outside their heavily reinforced dugout. These bunkers — there were hundreds — were of coconut logs packed with sand and coral to cushion the blast of shellfire. Proof against machine-guns and light artillery, they finally yielded to TNT and flame-throwers.

Malcolm McGregor

got safely ashore. They worked their way along the island shooting Japanese out of trees and blowing them out of foxholes. At one stage Hawkins was seen riding in an amtrac, bullets singing about his head, cleaning up machine-gun nests.

The commander of the initial assault, Colonel David Shoup, stood waist deep in the water, directing the battle with the aid of a radio transmitter strapped to a sergeant's back. He called for fire-support on the 'barrel' end of the island, but invaders and defenders were too close together for naval fire and carrier Hellcats were brought in to bomb and strafe the enemy positions. By 1000 hours, 23 amtracs and two LCMs full of dead and wounded were still stuck on the reef, and Japanese artillery fire was still pounding the beach-heads from emplacements on the eastern end of the island.

All through the morning of the first day the beach-head battle raged. Both sides had many heroes. One was Staff Sergeant William Bordelon, a Texan assault engineer, who had his amtrac knocked out under him. Bordelon led the four survivors ashore and began attacking enemy pillboxes — by creeping up beside them and laying demolition charges. They destroyed two, then, while attacking a third, the Texan was hit. He pressed on, using his rifle to cover other Marines scaling a wall. He made up another charge and attacked another emplacement, which he destroyed as the Japanese cut him down.

Col. Shoup had got safely ashore on Red Two beach. He quickly set up his command post on the seaward side of a Japanese bombproof shelter which was still occupied by the Japanese. The Marines could not get at the defenders



Ronald Hunt - Brady

for fear of blowing up their own commander, so sentries were posted at the entrances to contain them.

By noon, the tide had still refused to rise. The waiting landing craft could not float over the coral. Many of the amtracs were corpse-strewn wrecks stuck fast on the coral. Fifteen hundred Marines were trapped on the narrow beach under the shelter of the wall.

The east flank of beach Red One was under punishing enfilading fire, which had stopped all further landings in that section. Landing Team Two held a 200-yard strip on the eastern end of the beach, but were trapped there, unable to break out. Help was needed, and quickly. Shoup, not trusting the uncertain radios, sent Lieutenant Colonel Carlson back to the *Maryland* with a terse summary.

But Gen. Julian Smith, commanding the landing force, had already assessed it and committed one battalion of reinforcements. He was left with only one infantry battalion in reserve, and it was standing by. Smith immediately ordered it to move to the line of departure. Then he signalled to Maj. Gen. Holland Smith, in command of the Gilberts joint operation, asking that the 6th Combat Team also be placed under his control. Finally, he set about organizing the remaining divisional support troops — communicators, clerks, engineers and artillery men — into infantry battalions to be thrown into the battle if necessary.

By now the LSD *Ashland* had nosed into the lagoon and some of her tanks had got ashore. They rolled up through a gap in the retaining wall and forced a way through to the interior of the island. The reserves organized by Gen. Smith poured into the lagoon, which was still covered by a lagging tide. LVTs and LCVPs floundered off the edge of the reef, jamming the approaches to the pier. Many of the landing craft had had their radios shot away and were stuck in the lagoon waiting for orders.

The amtrac battalion's commanding officer, Major Henry Drewes, had been killed and his LVTs were leaderless. By



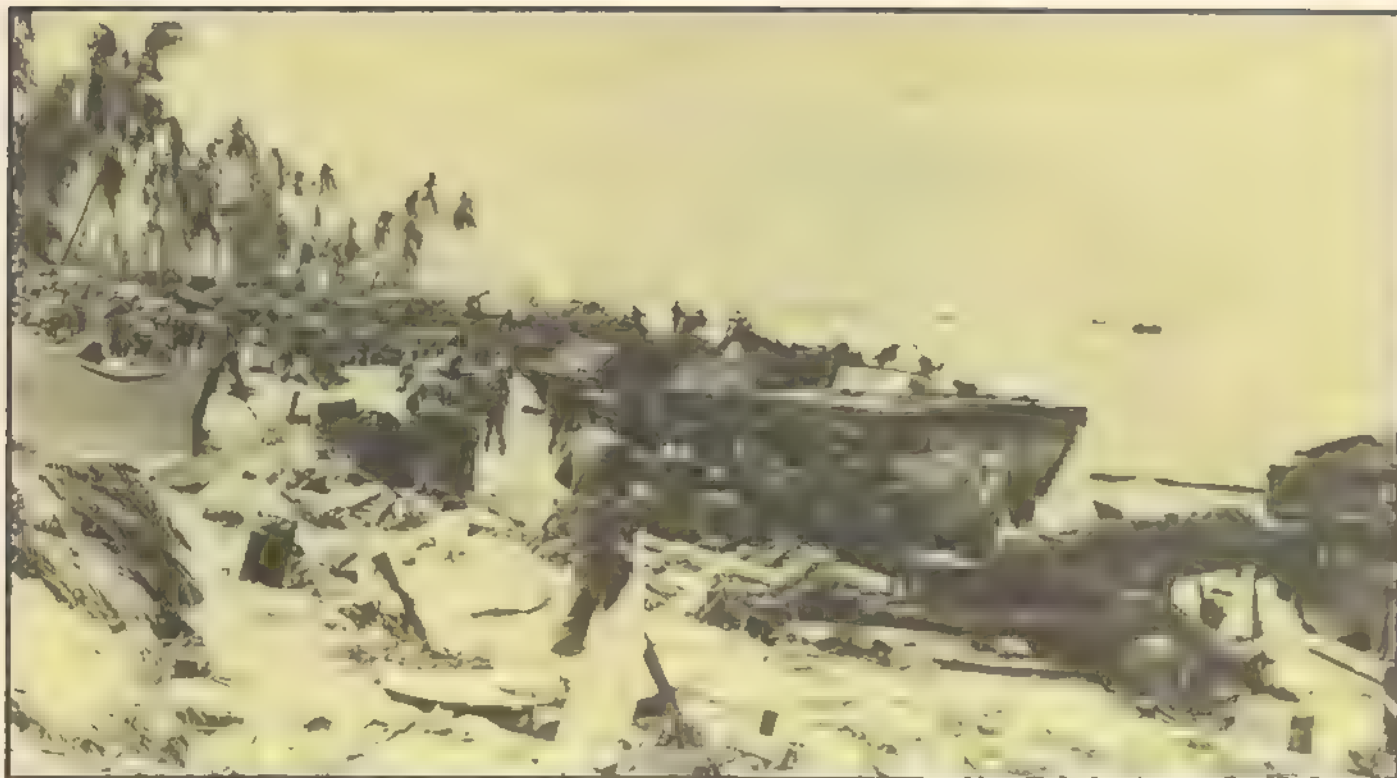
Malcolm McGregor

This Japanese naval infantryman (he can be identified by the anchor on his cap and helmet) is typical of the troops that defended Tarawa. Most detachments refused to surrender while a man was still standing, and almost the only prisoners the Marines took were Korean laborers.

mid-afternoon over 100 landing craft were milling around in the lagoon waiting for orders. Of the 5,000 men who reached the shore more than 1,500 were casualties. Several hundred had been evacuated from the beach by Navy medical corpsmen, who worked all through the day under fire. The wounded were ferried out over the reef in rubber rafts for transfer to landing craft, which then took them out to the transports.

Night came as some relief to both attackers and attacked. But even after dark the divisional artillery, landing on beach Red Two, could not roll their 75mm howitzers down the pier. The fire from the Japanese emplacements was still so heavy that the gunners had to dismantle their weapons and wade ashore with them.

By 1800 the Marines controlled the beach from a point 300 yards west of the pier to the short Burns Philp wharf 400 yards east, and to an average depth of 300 yards — about halfway across the island. At the butt end of beach Red One was a second beach-head, held by a force led by Major Michael Ryan and comprising units from the various battalions which happened to be stranded there. During the



night, half the Marines who had survived stood guard while the rest slept in improvised foxholes.

On the Japanese side, half the garrison of 4,800 men had been killed. The early morning naval bombardment had broken their communications, and Rear Adm. Shibasaki had been unable to control units outside his command post. The only part of the island where he could have found troops for a counter-attack was under almost continual bombardment by the destroyers.

During the night there was intense activity on both sides. Groups of Japanese tried to infiltrate the American perimeters, but they were driven off or wiped out. Several Japanese swam out and occupied a freighter hulk grounded north-west of the pier. Others crawled into disabled tanks and amtracs stranded on the reef. Still others set up machine-guns in the wooden latrines that extended out over the lagoon. The Marines, meanwhile, extended their hold on the island, and landing craft in the lagoon were gradually sorted out and brought under control by Captain John McGovern, who had set up a command post aboard *Pursuit*.

Help from carrier planes

D-plus one, 21 November, opened with the 1st Battalion, 8th Marines fighting their way ashore after 20 hours in their boats. The first three waves hit the centre of the reef and their ramps came down, only to be raked by fire from the nearby hulk occupied by the Japanese during the night. Help came from patrolling carrier planes, which swept down to attack the hulk with bombs and cannon.

But elsewhere the Japanese fire seemed undiminished. They continued to sweep the reef with crossfire from many positions. Marines trying to wade ashore were shot down almost to a man. In fact, during the next few hours the losses the reserve force suffered were greater than those of any battalion landed the previous day.

For Col. Shoup, still operating from his sand-hole com-

mand post by an enemy-held shelter, things were not moving fast enough. But radio communications were better this morning and signals flashed from him:

To the Assistant Divisional Commander:

IMPERATIVE YOU GET ALL TYPES AMMUNITION TO ALL LANDING PARTIES IMMEDIATELY.

To *Maryland*:

IMPERATIVE YOU LAND AMMUNITION, WATER, RATIONS AND MEDICAL SUPPLIES IN AMTRACS TO BEACH RED TWO AND EVACUATE CASUALTIES.

Chaos still reigned in the lagoon, with amtracs and boats milling around, their radios and drivers knocked out. Capt. McGovern, transport group commander, on *Pursuit*, using a bullhorn, bellowed out orders and gradually got the situation under control. But troops who attempted to land on beach Red One were driven back to their boats by heavy ground fire, and Col. Shoup reported to Gen. Julian Smith:

SITUATION NOT GOOD

Then at noon came the break the Marines needed. The tide came up at last and men and machines streamed ashore. With the help of call-fire from the destroyers, Maj. Ryan's men broke out of their narrow beach-head and over-ran three 80mm coast defense guns which had commanded the beach approaches and wrought appalling damage on amtracs and tanks. At 1225 they had reached the southwest corner of the island.

Marines were now landing on the southern half of Green Beach and advancing towards the western end of the air strip. Amtracs went in first, clearing the way for landing craft, and hauled two broken-down tanks off the beach. Maj. Ryan's men held the beach-head while the 1st Battalion, 6th Regiment, landed and dug themselves in, then called for aircraft to bomb the Japanese positions along the southern shore.

By 1700, survivors of the fragmented forces landed on Red Beach Two had fought their way across the airfield and established a small perimeter on the southern shore of the

LANDING CRAFT USED AT TARAWA

LCVP	Landing craft, vehicle and personnel
LCM	Landing craft, mechanized
LCV	Landing craft, vehicle
LVT	Landing vehicle, tracked (amphibious tractor or amtrac)
LSD	Landing ship, dock

◁ *This scene on beach Red Two the day after the landing shows in how confined a space the Marines had to fight their way ashore — and what an inviting target they presented. Jammed in a narrow strip are both types of amtrac, a jeep, two 75mm howitzers and a clutter of other equipment. Casualties on this beach were heavy.*

▷ *The cratered surface of Betio's airstrip after bombing and naval gunfire. Palm trees still stand close to some of the large craters — proof of the ability of sand and coral to absorb the blast of even the heaviest bombs. Seabees had the airstrip operational again within days.*

island. Light tanks, which had landed at high water, came rumbling up the beach firing high-explosive shells through the slits of pillboxes and bombproof shelters.

Meanwhile, the 6th Regiment had taken a neighboring island, Batriki, from which they were able to shell Japanese positions on Betio. At 1600, Col. Shoup was able to signal :

WE ARE WINNING.

The enemy force had been split, and the two beach-heads were expanded as position after position was overrun. Urgently wanted medical supplies were brought in and casualties evacuated by a shuttle service of LVTs.

At 1803, the first two jeeps came rolling along the pier towing 37mm guns, and Colonel Merritt Edson, Gen. Julian Smith's chief of staff, arrived to take command of all troops.

Early next morning, 22 November, the Japanese radio on Tarawa sent out its last message :

OUR WEAPONS HAVE BEEN DESTROYED AND FROM NOW ON EVERYONE IS ATTEMPTING A FINAL CHARGE. MAY JAPAN LIVE FOR TEN THOUSAND YEARS.

Desperate enemy resistance

In spite of the hopelessness of their position, the enemy resistance remained desperate all through the day. Light tanks rolled ashore on Beach Green and attacked along the south shore, pouring shellfire into the embrasures of pillboxes and bombshelters whose occupants refused to surrender. Marines followed with grenades and blocks of TNT. Flame-throwers scorched out what resistance was left. By nightfall the Americans had established themselves between the south shore and the east end of the airfield. The only strongpoint at the western end still in Japanese hands was a big bombproof emplacement between Beaches Red One and Red Two.

The 1st Battalion, under Major William Jones, had taken up positions on the eastern end late in the evening. Three times that night the Japanese made fanatical counter-attacks. But the Marines hung on desperately repulsing the attacks with artillery, machine-gun and rifle fire, hand grenades and bayonets, while destroyers *Schroeder* and



Robert Hunt Library/C. S. Marine Corps

Sigsbee pounded at the areas still under enemy control.

On the fourth day, 23 November, the 3rd Battalion, 6th Regiment relieved Maj. Jones's tired troops and swept down the narrow 'barrel' of Betio, systematically wiping out pockets of Japanese. Another team stormed the big bombproof shelter that no naval shell had been able to penetrate, hitting it with TNT, flame-throwers and heavy guns. When they smashed their way into its concrete caverns they found every man dead.

At noon Gen. Julian Smith signalled to Gen. Holland Smith aboard *Pennsylvania*, off Makin :

COMPLETE ANNIHILATION OF ENEMY THIS DATE.

Aftermath

By early afternoon, Marine engineers and Seabees were repairing the airstrip. The invasion of Tarawa had been accomplished. Betio was 'an abomination of desolation', its trees scorched and shredded, its air foul with the smell of scorched and rotting bodies.

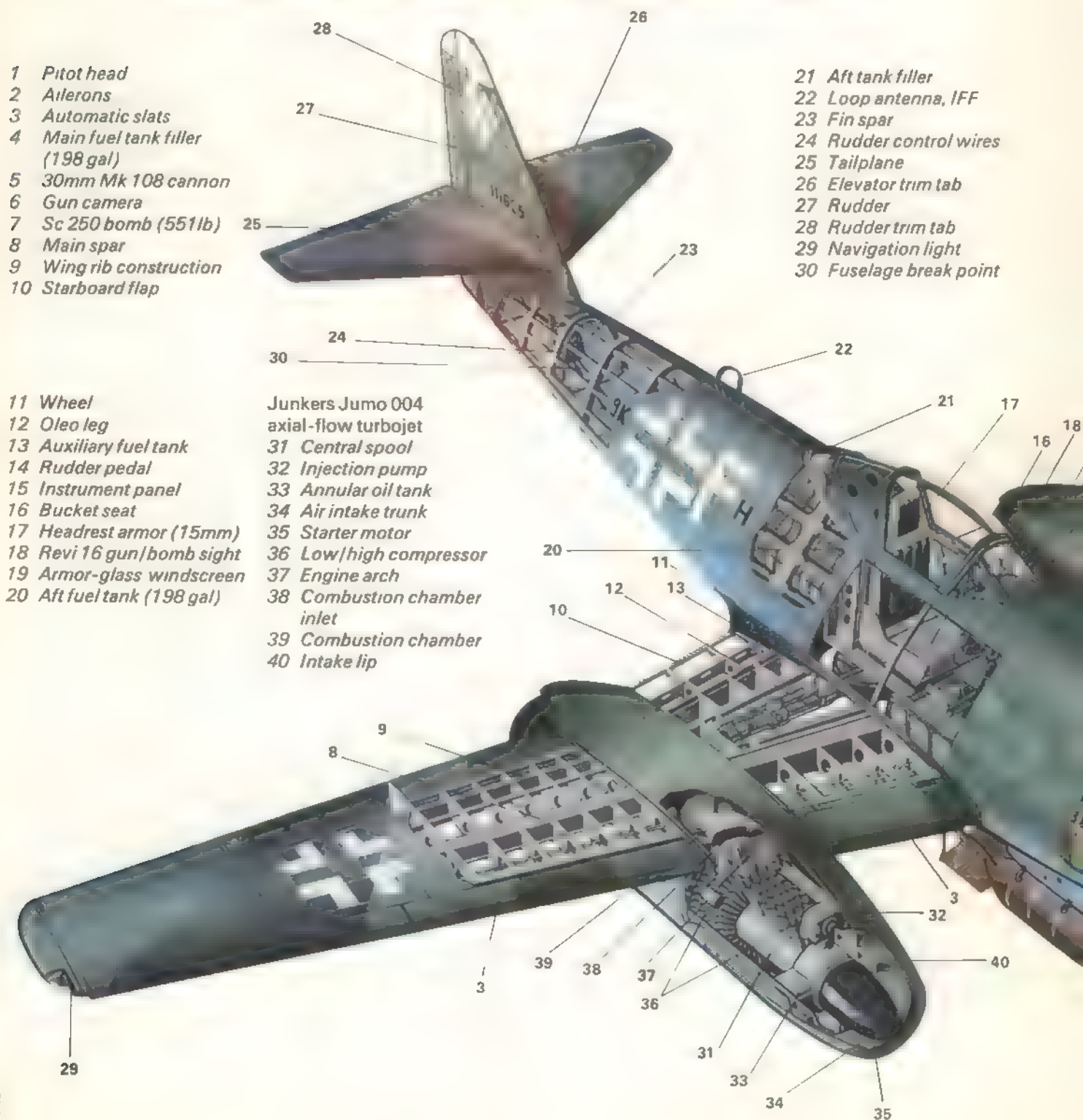
The battle for Betio cost the Americans 3,000 dead and wounded — and the Japanese their entire garrison. The Marines took only a few prisoners. The rest, including Rear Adm. Shibasaki, died to a man.

The Marines' casualty figures stunned the US public. Whether the tiny island was worth 1,000 lives has been disputed, but the American forces did gain some notable advantages. Punishing air raids on the Marshalls and Carolines, and reconnaissance flights over a wider area, were mounted from Betio's airstrip. And important lessons in assault landing techniques were also learned — notably the importance of pin-point bombing attacks on specific targets, rather than 'carpet' bombing over an area whose soft sand simply absorbed the shock of the bombs. So the cost of 'bloody Tarawa' was repaid by the lives it saved in later, larger invasions.

Burton Graham

THE ME.262

The world's first-ever combat jet, it might have won the air war. But Hitler saw it in a bomber's role



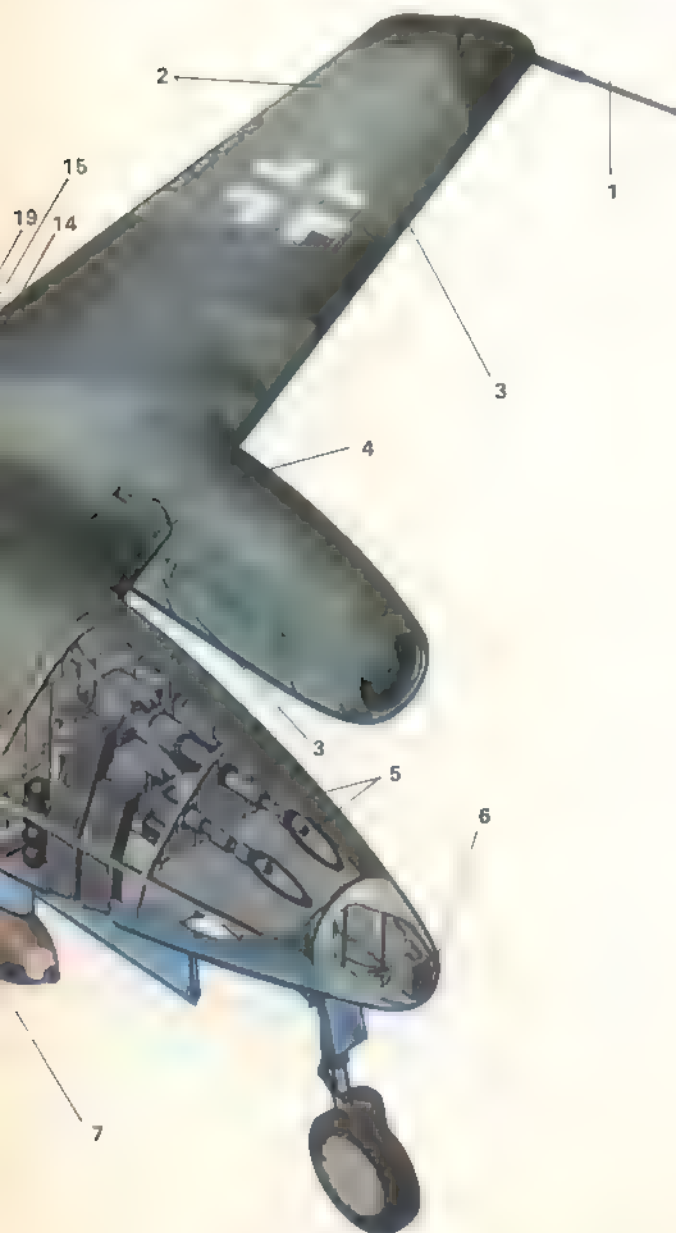
The Allies had three encounters with the Messerschmitt 262 before one of their pilots lived to describe its performance. He was Flight Lieutenant A. E. Wall who, on 25 July 1944, was on a photo reconnaissance mission from RAF Benson to the Munich-Stuttgart area. At 29,000ft and nearing Munich his observer, Flying Officer Lobban, reported a strange twin-engined aircraft about 400 yards astern. Wall pushed forward the throttles of his 390mph Mosquito — but was shocked to find that the enemy machine was still closing rapidly. Five times more he had to take evasive action before losing his attacker in cloud at 16,000ft over the Tyrol.

The Me 262 was the world's first operational jet fighter. Its story began in the early 1930s when a young German scientist, Hans-Joachim Pabst Von Ohain, began the development of a practical turbojet engine, at first on his own and then with the backing of the Ernst Heinkel company. Von Ohain's engine had its first flight tests in July 1939 beneath a Heinkel 118 and a month later, on 27 August, powered the world's first pure jet aircraft, the He 178.

The German Air Ministry's technical office saw the advantages of the new power plant and asked several aero-engine



Germany in 1944, showing Me 262 bases.



manufacturers to develop their own turbojets. The promise shown by the best two of these — the BMW 003 and the Junkers 004 — led the Air Ministry to ask the Messerschmitt company to design a jet fighter powered by the new engines. This was to be the Me 262.

Difficulties with engine development caused considerable delays and frustrations, but the first Me 262, powered by two Junkers 004 turbojets, finally flew on 18 July 1942 with test pilot Fritz Wendel at the controls. Prototype development steadily continued and the commanding general of the fighter arm, Lieutenant General Adolf Galland, was so impressed that he called for immediate production.

On 26 November 1943 the aircraft was demonstrated before Hitler. To everyone's surprise the Nazi leader immediately saw the Me 262 as a fast *bomber*, able to gain some revenge for the ceaseless bombing campaign being waged by the Western Allies. 'At last this is the Blitz bomber,' he said. 'Of course, none of you thought of that!' Despite protestations by German Air Force and Air Ministry staff, Hitler remained adamant. He demanded that the Me 262 be developed as a bomber to attack the Western Allies when their troops invaded Europe. His obstinacy delayed the aircraft's coming into service and led to its misuse when it finally did reach operational status.

In April 1944 the first pre-production Me 262s were delivered to the experimental station at Rechlin for operational acceptance testing, and a special service test unit was formed at Lechfeld under Captain Werner Thierfelder to evolve combat tactics for the Me 262. Designated *Erprobungskommando* (testing wing) 262, the unit undertook its first operational sorties late in June and quickly claimed successes, but lost its commander on 18 July when his plane crashed in flames near Landsberg. Shortly afterwards a single Me 262 intercepted Flt. Lt. Wall's Mosquito — and let out some German secrets — and early in August several other reconnaissance Mosquitoes were damaged or destroyed by Me 262s.

Meanwhile, following Hitler's insistence that the aircraft

JET FIGHTER ACES CLAIMING OVER SIX VICTORIES

No.	Pilot	Service unit
16	Lt. Col. Heinz Baer	Ekdo 162 and JV 44
14	Capt. Franz Schall	10./JG 7
12	Sgt. Hermann Buchner	III./JG 7
12	Maj. Georg-Peter Eder	9./JG 7
12	Maj. Erich Rudorffer	II./JG 7
11	2nd Lt. Karl Schnorrer	II./JG 7
8	Sgt. Buttner	JG 7
8	Heinz Lennartz	
8	1st Lt. Rudolf Rademacher	II./JG 7
8	1st Lt. Walter Schuck	3./JG 7
8	1st Lt. Gunther Wegmann	9./JG 7
8	Maj. Theodor Weissenberger	Stab/JG 7
7	Lt. Gen. Adolf Galland	JV 44
6	Col. Johannes Steinhoff	Stab/JG 7 and JV 44

be used as an offensive weapon, 12 pilots from 1st *gruppe Kampfgeschwader* No 51 (a bomber group flying Messerschmitt 410s on the Western Front) were transferred to Lechfeld in May 1944 for re-equipment with the Me 262 under the command of Major Wolfgang Schenk. It had been hoped to make the unit operational in time to meet the expected Allied invasion. But the Allies had realized that the most effective — indeed, almost the only — tactic against the jet plane was to destroy it on the ground, and an American raid on Augsburg and Lechfeld destroyed 60 jets in their parking bays.

Such attacks led to a widescale dispersion of the German aircraft industry, much use being made of underground facilities. Although this prevented any larger-scale bombing of Me 262 factories, not until late August was *Kommando Schenk* able to undertake its first operations from Juvincourt, near Reims. Early in September the unit moved to the Rhine area, being joined shortly afterwards by the remainder of the first group of KG 51 (Bomber Group 51) which was also re-equipping with the Me 262.

On 3 October the first Me 262 fighter unit was established at Achmer and Hesepe near Osnabruck under the command of the 22-year-old Austrian-born ace Major Walter Nowotny. The unit had 30 aircraft distributed among two squadrons and was given the task of intercepting USAAF day bomber raids on the heart of Germany.

The speed of the jet plane certainly startled Allied pilots. On 2 October 1944 four Thunderbolts had chased a strange German fighter, one managing to get on its tail but failing to overhaul it. Suddenly the Me 262 accelerated and left the Americans far behind. Soon afterwards the wingman of one of the leading Thunderbolt pilots yelled over the radio: 'My God, what was that?' as a streak flashed by their formation and whipped up into the clouds. Two pilots attempted to give chase, but with little success. Soon afterwards they discovered another Me 262, but this opened fire, forcing the Thunderbolts to turn inside the jet. The German pilot made several firing passes, then suddenly appeared to run out of fuel. The leading American aircraft at last managed to close, but before it could open fire the Me 262 hit the ground and exploded.

Despite the advanced nature of its equipment, the Me 262 unit did not prove very successful, mainly due to inadequate



A trio of smiling Me 262 aces. Δ Lt. General Adolf Galland, credited with over 70 victories. 'An Me 262 is worth more than five Me 109s', was his opinion \triangleright Colonel Johannes Steinhoff, an officer of the elite Jagverband 44 unit. ∇ Major Walter Nowotny, 22-year-old Austrian ace who died on 8 November 1944, when his Me 262 crashed through cloud cover at 500mph





Robert Hunt Library Bonn/Archiv

training. A day after it became operational, Captain Alfred Teumer, leader of the second squadron, was killed when the engine of his Me 262 failed as he came into land at Hesepe. Losses continued to mount steadily, and finally, on 8 November, Nowotny himself was lost when horrified observers saw his Me 262 plunge through cloud cover and dive into the ground at 500 mph.

After the death of Nowotny, Lt. Gen. Galland issued an order for the return of the unit to Lechfeld where it was to receive further training. Galland recorded that in several cases pilots made only two flights in the Me 262 before they were expected to go into action. During its time in action between 3 October and 12 November, however, *Kommando Nowotny* claimed the destruction of 22 enemy aircraft plus four probables for the destruction of 26 Me 262s.

One of the main reasons for the high losses was that the under-trained jet pilots had great difficulty in scoring hits at high speed and slowed down, thereby losing their great advantage — the speed that could take them out of most kinds of trouble. Apart from insufficient training, the Me 262 itself still suffered mechanical failures. The turbojets tended to flame out at altitude and suffer compressor stall at high speeds and altitudes, these difficulties often imposing an altitude limit of 26,000 ft on the aircraft. Other difficulties concerned structural failures, particularly of the tailplane and the collapse of the nose wheel and undercarriage due to the high landing speeds involved. Two-thirds of Me 262 crashes were put down to these causes.

The remnants of Nowotny's command now began to form the basis of a new jet fighter wing, *Jagdgeschwader 7*, named 'Hindenburg' after the former German President. Early in December 1944, Colonel Johannes Steinhoff was transferred to the new wing to supervise its training programme.

Meanwhile the first group of KG 51 continued to fly ground attack operations, although these served only to emphasize the futility of dropping small bombs from a fast moving aircraft designed as an interceptor — the bombs

would land up to a mile away from the intended target. After a short briefing of between five and ten minutes each pilot would take off and fly in a group with three other aircraft spaced about 100ft apart. The jets would normally fly at about 420 mph at 13,000ft, diving as low as 3,000ft on reaching the target. The pilots were forbidden to exceed a 35 degree dive or 570 mph. If Allied fighters were encountered the Me 262s could evade them by increasing speed. The return home would usually be made at 4,000 ft.

One notable operation took place on 1 January 1945 when Me 262 bombers led an extremely successful attack by the piston-engined fighters of JG 3 on the RAF airfield at Eindhoven, wiping out 50 Spitfires and Tempests on the ground. This was part of Operation *Bodenplatte* — a massive strike by 33 German fighter wings on Allied airfields in Northern France, Belgium and Holland, in support of the Germans' faltering ground offensive in the Ardennes. About this time, the second group of KG 51 under Major Martin Vetter joined the first, the unit having been re-equipped with the Me 262.

Also in January 1945 the third group of JG 7 became active at Parchim near Schwerin with 31 Me 262s, of which about 20 were serviceable. Soon afterwards it was joined by the staff flight, and the formation of three more *Gruppen* was proposed. None of these became fully operational, although they did make a considerable contribution to the German fighter effort.

As 1944 drew to a close, many German Air Force bomber units were disbanded with the intention of switching their crews to fighter operations. No fewer than five bomber wings (KG 6, KG 27, KG 30, KG 54 and KG 55) were withdrawn from the front to be re-equipped with the Me 262 fighter. Their training was placed in the hands of a special training unit designated III./EJG 2 at Lechfeld.

'Bounced' by Mustangs

The first ex-bomber unit to become operational was KG(J) 54 under Lieutenant Colonel Volprecht von Riedesel. Based at Giebelstadt, I./KG(J) 54 became active late in January 1945, but on 9 February Riedesel was shot down and killed by an American fighter, his place being taken by Major Hans-Georg Baetcher. Soon afterwards, on 25 February, a squadron of II./KG(J) 54 which was working-up at Kitzingen, suffered heavily when it was 'bounced' by a group of American Mustangs as it was taking-off. In the ensuing action, three pilots were killed and seven Me 262s written-off. As far as is known, the only other ex-bomber unit to become operational before the end of the war was KG(J) 6 under Major Hans Baasner, this unit flying operations in the defence of Berlin.

By this time, KG 51 was also flying fighter operations as KG(J) 51, although it did co-operate with KG 76's Arado 234 jet bombers in desperate, but unsuccessful attempts to destroy the remaining bridge over the Rhine at Remagen in March 1945.

During this month the Me 262 jet fighters of JG 7 really began to make themselves felt. The Messerschmitts were mainly used to attack four-engined American bombers — a tactic that many German fliers considered wasteful. They thought the jet should engage the American fighter escort, leaving the German piston-engined interceptors to attack the bombers without hindrance. JG 7's aircraft usually attacked from slightly above and to the rear, diving in to fire at each bomber in turn, pulling out of the dive to avoid any debris from the bomber, and climbing slightly before diving



Robert Hunt Library/U.S. Air Force

A camera-gun records the last moments of an Me 262 just before it was shot down by an Allied Mustang in an air battle that took place over Germany in 1945. Although faster than Allied fighters, the Me 262 was finally beaten by overwhelming odds — and by air raids on its bases.

at a second target. Apart from the four 30mm cannon, many Me 262s also carried 12 55mm R4M unguided rockets under each wing. The main Allied countermeasure against the jets was to place standing patrols above their airfields and shoot them down when they took off or came in to land. In an attempt to prevent this the Germans placed heavy anti-aircraft defences — flak corridors — around their airfields and moved their best piston-engined fighters into the area.

On 2 March 1945, 35 Me 262s attacked a USAAF bomber formation near Dresden and next day 50 jets intercepted an American force bombing Magdeburg. Perhaps the most successful jet operation was on 18 March when 37 Me 262s of JG 7 attacked 1,250 American bombers heading for Berlin in atrocious weather. The German pilots claimed the destruction of 24 B-17s and five fighter escorts for the loss of two Me 262s.

Intensive operations continued until 25 March, both JG 7 and KG(J) 54 losing pilots but claiming many successes. Various reasons forced a pause in jet activity from 25 March until 4 April, but on that day over 50 Me 262s took off, destroying five heavy bombers and a Mosquito. On the debit side, seven Messerschmitts fell to the guns of the American fighter escort, including that of the commander of III./JG 7, Major Rudolf Sinner, who was injured.

By now, the Allies recognized the Me 262 as a real threat. Lieutenant Colonel John C. Meyer, from one USAAF Mustang fighter group, considered that one Me 262 was the

equal of eight Allied fighters. He based this opinion on an action when he led eight Mustangs to defend a crippled B-17 against a jet attack. He found that although he could easily out-turn the Me 262, it was fast enough to fly around the circumference of a circle while they cut across the diameter.

On the German side, Galland himself said 'An Me 262 is worth more than five Me 109s' — a piston-engined fighter. But however good its performance, it could not succeed against overwhelming odds. Major Erich Rudorffer of II./JG 7 explained: 'It was very good and very fast, but there were just too many Allied fighters in the air at that late stage in the war for the number of Me 262s we had. One day in April 1945 I saw about 2,000 Allied aircraft over Germany. I had about 14 Me 262s. We shot down seven American aircraft, but lost two Me 262s and my own machine was damaged.'

On 7 April 50 of the jet fighters engaged the USAAF, the Germans claiming two Liberators, the Americans five Me 262s. Three days later the jets shot down ten bombers, but at the cost of no fewer than 20 of their own number. Following this disaster, jet operations began to tail off. By now no base was safe from the activities of the Allies. If the German pilots managed to avoid destruction on the ground, they faced overwhelming numbers of Allied fighters in the air, and if they then succeeded in returning safely there was the ever-present possibility of hitting a bomb crater on landing or being strafed by fighter-bombers. The Me 262 could easily outpace the fastest piston-engined fighters, but they had hundreds to avoid.

Elite jet fighter group

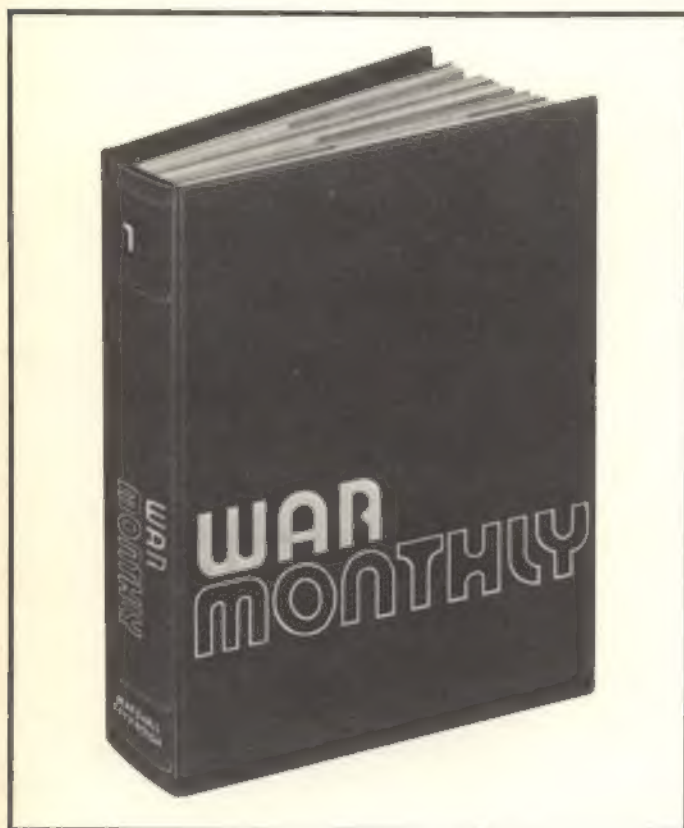
Even the creation of an elite jet fighter group could have little effect. Early in January, Lt. Gen. Galland had been relieved of his overall command. The young general had never been in agreement with the way his fighter arm had been used and finally his protestations grew too much for Goering. In an attempt to salvage something from disaster, Galland began the creation of *Jagverband* (fighter unit) 44, an elite unit that recruited some of the most famous German fighter pilots including Colonel Johannes Steinhoff, Colonel Guenther Luetzow, Lieutenant Colonel Heinz Baer, Major Erich Hohagen and Major Walter Krupinski.

Lt. Gen. Galland's unit suffered as much as the others. Early in April Major Gerhard Barkhorn (the *Luftwaffe's* second highest scoring pilot with 301 claimed victories) joined the group, but was wounded on his second operation. On 18 April Steinhoff's Me 262 hit a bomb crater and caught fire, the famous ace suffering severe burns. Six days later, Luetzow was shot down near Donauwoerth and on 26 April, Galland himself was wounded in the knee, Baer, who claimed 16 jet victories, taking over command. On the same day the last 95 of the 1,294 jet planes produced were transferred to Munich from a number of jet units which had been disbanded in a final attempt to concentrate jet fighter strength within JV 44.

However, by this time US ground forces were nearing the Bavarian capital, and JV 44 was forced to transfer to Salzburg where, on 3 May, its pilots set fire to their aircraft and surrendered. Thus died the last and best of the World War II fighter units, a unit which was operational for just over a month, and yet with an average of only six serviceable aircraft, managed to claim over 50 victories. And with it died the Me 262, the first and last jet fighter of the war.

J. Richard Smith

How To Get More Than Money's Worth From War Monthly



War Monthly is more than just a magazine. It is a unique library of military history and military hardware from early times to the 1970s — a library you build up, month by month.

Keeping your copies loose runs the risk that you will lend some, damage some, lose some.

Instead, keep them for permanent reference — for reading and re-reading — in this beautifully-

produced War Monthly Binder. The War Monthly Binder will

— hold 10 copies easily, neatly and in perfect condition.

— give you easy access to all the features in War Monthly.

— look good on your bookshelf.

— help you transform your collection of War Monthly into a superb set.

SPECIAL HALF-PRICE OFFER!

Normally, War Monthly binders cost £1.50. Readers in the UK and Eire can SAVE 50% on our special introductory binder offer — if you act quickly. Fill in the special

coupon below, and the first binder can be yours for just 75p. But do it today — this offer definitely closes on February 28, 1974.

HOW TO ORDER YOUR WAR MONTHLY BINDER

UK: Complete the order form and send it to: War Monthly Binders, Dept. 58 (M/C Ltd.), P.O. Box 80, Slough, SL3 8BN. Price £1.50 including VAT. *Special offer price* (valid until February 28, 1974), 75p.

AUSTRALIA: Binders are available through your local newsagent at \$3.75* each.

CANADA: Complete the order form and send it to: Binder Department, Marshall Cavendish Ltd., 58 Old Compton Street, London W1V 5PA, England. Price \$4 each. Please allow 8-12 weeks for delivery.

EIRE: Complete the order form and send it to: Binder Dept., Marshall Cavendish Ltd., 58 Old Compton Street, London W1V

5PA. *Special offer price* (valid until February 28, 1974), 75p.

MALTA: Your local newsagent can supply binders at a cost of £1.50 each.

NEW ZEALAND: Complete the order form and send it to: War Monthly Binders, Gordon & Gotch (NZ) Ltd., P.O. Box 1695, Wellington. Price \$3.50 each.

SOUTH AFRICA: Binders are

available from any branch of Central News Agency Ltd., at R3.25 each.

UNITED STATES: Complete the order form and send it to: Binder Department, Marshall Cavendish Ltd., 58 Old Compton Street, London W1V 5PA, England. Price \$4 each. Please allow 8-12 weeks for delivery.

Please fill in your name and address twice, one to used as a return label.

BINDER

WAR MONTHLY

NAME _____

ADDRESS _____

GUARANTEE: If you are not entirely satisfied with your binder, send it back immediately and it will be exchanged, or your money refunded in full, as you wish.

BINDER

WAR MONTHLY

NAME _____

ADDRESS _____



NEXT MONTH, read...

Why the Wehrmacht failed at the gates of
beseiged and starving Leningrad

How an obsolete pre-1914 aircraft produced
the 'Fokker Scourge' that rocked the Allies

How the myth of the dreaded German 88 AA/AT
gun began—and was finally exploded

Of Johnny Reb: was he America's
best-ever soldier and, if so, why?

How Rommel's Panzers mauled the Allied army
at the battle of the Kasserine Pass

How Germany's famed Scharnhorst was destroyed
in one of the last great naval gun duels (below)



WAR MONTHLY